



## **CURRICULUM VITAE**



**PROFESSOR DATO' DR SHAMALA K SUBRAMANIAM**

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**DEPARTMENT OF COMMUNICATION TECHNOLOGY AND NETWORKS  
FACULTY OF COMPUTER SCIENCE AND INFORMATION TECHNOLOGY  
UNIVERSITI PUTRA MALAYSIA**

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### **A. BIODATA**

## CURRICULUM VITAE

### A. BIODATA

- a. Name : Prof. Dato' Dr. Shamala K. Subramaniam  
 b. Department : Communication Technology and Networks  
 c. Faculty : Computer Science and Information Technology  
 d. Field of Specialization : Computer Science (Distributed Computing)  
 e. Identity Card Number (New) : 730519-05-5046  
 f. Date of Birth : 19 May 1973
- g. Contact:
- Office : +603-9769 1748 ; Mobile Phone : +6012-3113570  
 E-mail : shamala\_ks@upm.edu.my ; drshamala@gmail.com

### h. Current & Previous Academic Position:

**Current Position** : **Professor**  
 Faculty / Academy : Faculty of Computer Science and  
 Information Technology , Universiti Putra Malaysia

Grade : VK7  
 Date of Present Appointment : 01 February 2015\*

**Previous Position #1** : **<sup>1</sup> Associate Professor**  
 Grade : DS54  
 Date of Present Appointment : 01 May 2011

**Previous Position #2** : **Senior Lecturer**  
 Grade : DS52  
 Date of Appointment : 01 November 2008

**Previous Position #3** : **Director, Women and Sports Division  
 National Sports Council (NSC)**  
 Grade : DS45  
 Date of Appointment : 01 July 2006

**Previous Position #4** : **Lecturer**  
 Grade : DS45  
 Date of Appointment : 01 April 2003  
 Date of Confirmation : 12/10/2004

**Previous Position #5** : **Director**  
 Grade : VK7  
 Date of Appointment : 01 Feb 2013  
 Date of Confirmation : 30 January 2021

### i. Education and academic qualification

| Degree       | Class/Achievement | University Awarded | Year |
|--------------|-------------------|--------------------|------|
| PhD          | Computer Science  | UPM                | 2003 |
| Master       | Computer Science  | UPM                | 1999 |
| First Degree | Computer Science  | UPM                | 1997 |



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### B. TEACHING



## B. TEACHING

### B.1.1. COURSE CODE AND NAME

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| No  | Course Code | Course Name                                      |
|-----|-------------|--|
| 1.  | SAK3100     | Computer Programming I                           |
| 2.  | SAK3101     | Computer Programming II                          |
| 3.  | SAK3103     | Discrete Structure                               |
| 4.  | SAK3117     | Data Structure                                   |
| 5.  | SAK3309     | Operating Systems                                |
| 6.  | SAK4502     | System Modeling and Simulation                   |
| 7.  | SAK5308     | Real Time Systems                                |
| 8.  | SKR3200     | Communication and Networks                       |
| 9.  | SKR4205     | Wireless and Mobile Networks                     |
| 10. | SKR4307     | Mobile Applications                              |
| 11. | SKR4401     | Distributed Systems                              |
| 12. | SKR4402     | Client-Server Computing                          |
| 13. | SKR5501     | Performance Modeling of Communication Technology |
| 14. | SSK5090     | Research Methods in Computer Science             |

### B.1.2. TEACHING EXPERIENCES

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| No. | Code and Name of Courses | Credit Hour | Number of Students | Teaching Assessment (5.0 score) | Semester/Academic Year |
|-----|--------------------------|-------------|--------------------|---------------------------------|------------------------|
| 1.  | SKR5501                  | 3+0         | 10                 | -                               | Sem II (2018/2019)     |
| 2.  | SKR4307                  | 3+0         | 38                 | -                               | Sem II (2018/2019)     |
| 3.  | SKR4307                  | 3+0         |                    | -                               | Sem I (2018/2019)      |
| 4.  | SSK5090                  | 3+0         |                    | -                               | Sem I (2017/2018)      |
| 5.  | SKR4307                  | 3+0         |                    | -                               | Sem I (2017/2018)      |
| 6.  | SKR4205                  | 2+1         |                    | -                               | Sem II (2016/2017)     |
| 7.  | SKR4307                  | 2+1         |                    | -                               | Sem I (2016/2017)      |
| 8.  | SKR4307                  | 2+1         |                    | -                               | Sem II (2015/2016)     |
| 9.  | SKR4307                  | 2+1         | 41                 | -                               | Sem I (2015/2016)      |
| 10. | SKR4307                  | 2+1         | 10                 | 4.60                            | Sem II (2014/2015)     |
| 11. | SKR4307                  | 2+1         | 26                 | 4.71                            | Sem I (2014/2015)      |
| 12. | SKR5501                  | 3+0         | 23                 | 4.83                            | Sem I (2014/2015)      |
| 13. | SKR4307                  | 2+1         | 28                 | 4.44                            | Sem II (2013/2014)     |
| 14. | SKR5501                  | 3+0         | 16                 | 4.41                            | Sem I (2013/2014)      |
| 15. | SKR4307                  | 2+1         | 12                 | 4.75                            | Sem I (2013/2014)      |
| 16. | SKR5501                  | 3+0         | 33                 | 4.70                            | Sem II (2012/2013)     |
| 17. | SKR4307                  | 2+1         | 22                 | 4.85                            | Sem II (2012/2013)     |
| 18. | SKR5501                  | 3+0         | 36                 | 4.94                            | Sem I (2012/2013)      |
| 19. | SKR4307                  | 2+1         | 22                 | 4.78                            | Sem I (2012/2013)      |
| 20. | SKR5501                  | 3+0         | 35                 | 4.88                            | Sem II (2011/2012)     |
| 21. | SKR4307                  | 2+1         | 27                 | 4.64                            | Sem II (2011/2012)     |
| 22. | SKR5308                  | 3+0         | 40                 | 4.52                            | Sem I (2011/2012)      |
| 23. | SKR4401                  | 3+0         | 42                 | 4.58                            | Sem I (2011/2012)      |
| 24. | SKR4307                  | 2+1         | 41                 | 4.74                            | Sem I (2011/2012)      |

| No. | Code and Name of Courses | Credit Hour | Number of Students | Teaching Assessment (5.0 score) | Semester/Academic Year |
|-----|--------------------------|-------------|--------------------|---------------------------------|------------------------|
| 25. | SKR4307                  | 2+1         | 12                 | 4.87                            | Sem II (2010/2011)     |
| 26. | SAK4502                  | 3+0         | 24                 | 4.91                            | Sem II (2010/2011)     |
| 27. | SKR5501                  | 3+0         | 28                 | 4.73                            | Sem II (2010/2011)     |
| 28. | SKR5308                  | 3+0         | 37                 | 4.80                            | Sem I (2010/2011)      |
| 29. | SKR5501                  | 3+0         | 35                 | 4.73                            | Sem I (2010/2011)      |
| 30. | SSK3003                  | 3+0         | 43                 | 4.75                            | Sem I (2010/2011)      |
| 31. | SKR5308                  | 3+0         | 37                 | 4.84                            | Sem II (2009/2010)     |
| 32. | SAK4502                  | 3+0         | 28                 | 4.90                            | Sem.II (2009/2010)     |
| 33. | SAK3309                  | 3+0         | 49                 | 4.68                            | Sem.II (2009/2010)     |
| 34. | SSK3003                  | 3+0         | 43                 | 4.63                            | Sem. I (2009/2010)     |
| 35. | SKR5308                  | 3+0         | -                  | -                               | Sem. I (2009/2010)     |
| 36. | SAK4502                  | 3+0         | 22                 | 4.92                            | Sem. I (2009/2010)     |
| 37. | SAK3309                  | 3+0         | 31                 | 4.44                            | Sem. II (2008/2009)    |
| 38. | SAK4502                  | 3+0         | 21                 | 4.84                            | Sem. II (2008/2009)    |
| 39. | SKR3201                  | 3+0         | 20                 | 4.90                            | Sem. I (2008/2009)     |
| 40. | SAK4502                  | 3+0         | 20                 | 4.71                            | Sem. I (2008/2009)     |
| 41. | SAK5308                  | 3+0         | 23                 | 4.69                            | Sem. I (2007/08)       |
| 42. | SKR5501                  | 3+0         | 33                 | 4.61                            | Sem. II (2007/08)      |
| 43. | SAK5308                  | 3+0         |                    |                                 | Sem. I (2006/07)       |
| 44. | SKR5501                  | 3+0         | 23                 | 4.70                            | Sem. II (2006/07)      |
| 45. | SAK3101                  | 3+1         | 29                 | 4.50                            | Sem. II (2005/2006)    |
| 46. | SKR4402                  | 3+0         | 96                 | 4.54                            | Sem. II (2005/2006)    |
| 47. | SKR5501                  | 3+0         | 28                 | 4.76                            | Sem. II (2005/2006)    |
| 48. | SAK3100                  | 3+1         | 26                 | 4.56                            | Sem. I (2005/2006)     |
| 49. | SAK4502                  | 3+0         | 87                 | 4.65                            | Sem. I (2005/2006)     |
| 50. | SAK5308                  | 3+0         | 42                 | -                               | Sem. I (2005/2006)     |
| 51. | SKR5308                  | 3+0         | 43                 | -                               | Sem. I (2004/2005)     |
| 52. | SAK4502                  | 3+0         | 89                 | 4.62                            | Sem. I (2004/2005)     |
| 53. | SAK3117                  | 3+1         | 50                 | 4.69                            | Sem. I (2004/2005)     |

| No. | Code and Name of Courses | Credit Hour | Number of Students | Teaching Assessment (5.0 score) | Semester/Academic Year |
|-----|--------------------------|-------------|--------------------|---------------------------------|------------------------|
| 54. | SKR5501                  | 3+0         | 43                 | -                               | Sem. II (2004/2005)    |
| 55. | SAK3101                  | 3+1         | 53                 | 4.62                            | Sem. II (2004/2005)    |
| 56. | SAK3103                  | 3+0         | 47                 | 4.50                            | Sem. II (2004/2005)    |
| 57. | SAK3101                  | 3+1         | 49                 | -                               | Sem.II (2003/2004)     |
| 58. | SKR3200                  | 3+0         | 129                | 4.24                            | Sem.II (2003/2004)     |
| 59. | SKR5501                  | 3+0         | 46                 | -                               | Sem.II (2003/2004)     |
| 60. | SAK3100                  | 3+1         | 38                 | 4.13                            | Sem. I (2003/2004)     |
| 61. | SAK4502                  | 3+0         | 41                 | 4.77                            | Sem. I (2003/2004)     |
| 62. | SAK5308                  | 3+0         | 40                 | 4.48                            | Sem. I (2003/2004)     |

### B.1.3. COMPETENCY IN BAHASA MALAYSIA / ENGLISH LANGUAGE

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| Language        | Examination                     | Grade |
|-----------------|---------------------------------|-------|
| Bahasa Malaysia | Sijil Pelajaran Malaysia (SPM)  | C3    |
| English         | Sijil Pelajaran Malaysia (SPM)  | A1    |
|                 | Cambridge English Language 1119 | C3    |





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**C. ADMINISTRATIVE POSITIONS  
AND OTHER RESPONSIBILITIES**

### C. ADMINISTRATIVE POSITION AND OTHER RESPONSIBILITIES

| ADMINISTRATIVE POSISTION |               |   |                         |
|--------------------------|---------------|---|-------------------------|
| NO                       | POSITION      | ORGANIZATION DETAILS                        | DURATION                |
| 1                        | DIRECTOR      | SPORTS ACADEMY<br>UNIVERSITI PUTRA MALAYSIA | 1 FEB 2013- 30 JAN 2020 |
| 2                        | SENATE MEMBER | UNIVERSITI PUTRA MALAYSIA                   | 1 FEB 2013- 30 JAN 2020 |

| OTHER RESPONSIBILITIES |                                |  |                                   |
|------------------------|--------------------------------|--|-----------------------------------|
| NO                     | POSITION                       | ORGANIZATION DETAILS   | DURATION                          |
| 1                      | MEMBER OF COUNCIL              | NATIONAL SPORTS COUNCIL  | 21 SEPTEMBER 2018 – 30 APRIL 2020 |
| 2                      | BOARD OF DIRECTORS             | YAYASAN KEBAJIKAN ATLET (YAKEB)  | 3 MAY 2019 – 07 MAC 2021          |
| 3                      | BOARD OF DIRECTORS             | NATIONAL SPORTS INSTITUTE (NSI)<br>( <i>INSTITUT SUKAN NEGARA (ISN)</i> )                    | 1 OCT 2017 – 20 AUGUST 2021       |
| 4                      | BOARD OF DIRECTORS             | NATIONAL SPORTS INSTITUTE (NSI)<br>( <i>INSTITUT SUKAN NEGARA (ISN)</i> )                    | 1 OCT 2015 – 30 SEPTEMBER 2017    |
| 5                      | HEAD OF FACULTY RESEARCH GROUP | WIRELESS AND MOBILE RESEARCH GROUP<br>FACULTY OF COMPUTER SCIENCE AND INFORMATION TECHNOLOGY | 1 NOV 2015 - 1 NOV 2017           |



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### **D. RESEARCH**

## D. RESEARCH

### D.1. RESEARCH GRANTS

| No. | Title  | Role (Main (Principal) / Co-Researcher) | Sponsor/Grant and Amount (RM)   | Period (year) | Status (Completed/Ongoing) |
|-----|--|---|---|---------------|----------------------------|
| 1.  | "IoS Rocks" – A Field Hockey Performance Analysis Tool in Off the Field Practices      | Main Researcher                         | Prototype Research Grant Scheme   | 2017 – 2019   | On going                   |
| 2.  | Proxy Mobility Management For Ip-Based Wireless Sensor Networks For Sports             | Main Researcher                         | Sciencefund (Ministry of Science, Technology and Innovation (MOSTI)) – RM 199,890<br>- Cost Centre 5450722    | 2013-2015     | Completed                  |
| 3.  | Seamless Inter Network Mobility for Nodes in Personal Area Network using IPv6 Protocol | Main Researcher                         | MIMOS Berhad – Universiti Putra Malaysia Collaborative Research and Development Agreement – RM223,891.00      | 2011-2013     | Completed                  |
| 4.  | Wireless Adhoc and Sensor Reconfiguration and Optimization System                      | Main Researcher                         | Sciencefund (Ministry of Science, Technology and Innovation (MOSTI))<br>- RM128, 732<br>– Cost Centre 5450267 | 2006-2008     | Completed                  |
| 5.  | Wireless Sensor Based Field Hockey Strategy System (V.2)                               | Main Researcher                         | Fundamental Research Grant Scheme (FRGS) – Cost Centre 03-04-10-876FR (RM87,000)                              | 2010 – 2012   | Completed                  |
| 6.  | Performance Analysis Simulator for Wireless Sensor MICA 2 Systems.                     | Main Researcher                         | Research University Grant Scheme (RUGS) - Cost Centre 05-01-09-0742RU (RM20,000)                              | 2009 - 2011   | Completed                  |
| 7.  | Quantum Key Distribution Protocol for Quantum Computer                                 | Co-Researcher                           | Research University Grant Scheme (RUGS) - 05-01-07-0234RU- RM 143,500.  | 2007-2009     | Completed                  |
| 8.  | Adaptive Aggregation Scheme for VoIP in IEEE   | Co-Researcher                           | Fundamental Research Grant Scheme (FRGS)  | 2010-2012     | Completed                  |

| No. | Title   | Role (Main (Principal) / Co-Researcher) | Sponsor/Grant and Amount (RM)   | Period (year) | Status (Completed/Ongoing) |
|-----|---|---|---|---------------|----------------------------|
|     | 802.11n Wireless Networks Based on Traffic Classes  |   | RM73,000.00<br>Cost Centre – 05-03-10-1039RU  |               |                            |
| 9.  | Adaptive Aggregation Scheme for VoIP in IEEE 802.11n Wireless Networks Based on Traffic Classes                               | Co-Researcher                           | Research University Grant Scheme<br>RM75,000.00<br>Cost Centre – 05/01/07/0180RU                              | 2010-2012     | Completed                  |
| 10. | Two-layer Job Scheduling Based on QoS Specification in Data Grid  | Co-Researcher                           | Research University Grant Scheme (RUGS)<br>RM22,000.00<br>Project Number – 05-01-09-0878RU                    | 2009-2011     | Completed                  |
| 11. | Wireless Mesh Network Architecture Design: Zero-Degree Model for Internet Gateway Placement                                   | Co-Researcher                           | Sciencefund (Ministry of Science, Technology and Innovation (MOSTI))<br>- RM128, 732<br>– Cost Centre 5450267 | 2012-2014     | Ongoing                    |
| 12. | Performance Enhancement and Programme Sustainability for Paralympic Athletes and Team Management                              | Co-Researcher                           | Ministry of Education (Knowledge Transfer Program)<br>- RM 183,680.00<br>Cost Centre - 963100                 | 2013-2015     | Ongoing                    |
| 13. | Algorithm of Localization and Tracking Still and Moving Sensors in Irregular Topology   | Co-Researcher                           | Research University Grant Scheme (RUGS) - UiTM<br>RM80,000.00<br>Project Number – 600-RMI/RAGS 5/3            | 2013-2015     | Ongoing                    |
| 14. | An Application of Wireless Sensor Networks (WSN) and High Performance Computing on Smart Parking Platform                     | Co-Researcher                           | Research University Grant Scheme (RUGS)<br>RM35,000.00<br>Project Number – 05-02-12-1831RU                    | 2012-2014     | Ongoing                    |
| 15. | Utilizing Physiological signal patterns and analysis via computer supported training to strategize sports optimal performance | Co-Researcher                           | GP-IBT<br>RM200,000.00<br>Project Number – bp-ipt/2013/9410300  | 2013-2015     | Ongoing                    |



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### E. SUPERVISION



## E. SUPERVISION

### E.1. UNDERGRADUATE

| No. | Course   | Name of Student and Project   | Status of Completion | Year |
|-----|----------|---|----------------------|------|
| 1.  | Bachelor | Amalina binti Omar (169862) <i>Mobile Application for Contingent Management</i>                     | Completed            | 2015 |
| 2.  | Bachelor | Teagarajan Kunasakaran (164080) <i>Mobile Applications for Karate Competition Management</i>        | Completed            | 2015 |
| 3.  | Bachelor | Chia See Ming (162255) <i>Bus Localizations Application for UPM</i>                                 | Completed            | 2015 |
| 4.  | Bachelor | Koo Chee Zhong (161367) <i>Athlete Health Condition Monitoring System</i>                           | Completed            | 2015 |
| 5.  | Bachelor | Ng Yong Yong (161317) <i>Space Monitoring System for Lecturers using WSN-IP</i>                     | Completed            | 2015 |
| 6.  | Bachelor | Chin Swet Chen (157738) <i>Athletes Movement Tracking using Wireless Sensor Networks</i>            | Completed            | 2014 |
| 7.  | Bachelor | Siti Hajar binti Ahmad (158845) <i>Hockey Management Portal</i>                                     | Completed            | 2014 |
| 8.  | Bachelor | Tan Xin Yi (159412) <i>Athletes Health Monitoring using Wireless Sensor Networks</i>                | Completed            | 2014 |
| 9.  | Bachelor | Muhamad Arif Raimi bin Rosly (151493) <i>FSKTM Wireless Sensor Network with Mobile IP</i>           | Completed            | 2013 |
| 10. | Bachelor | Ling Chui Lian (151494) <i>Temperature Monitoring and Fire Detection System</i>                     | Completed            | 2013 |
| 11. | Bachelor | Hue Joon Lip (149998) <i>Energy Aware Routing Protocol Simulation</i>                               | Completed            | 2012 |
| 12. | Bachelor | Lew Yau Hooi (149020) <i>Power Aware Routing Algorithms Simulation for Wireless Sensor Networks</i> | Completed            | 2012 |
| 13. | Bachelor | Yu Mei Mei (148792) <i>Wireless Sensor Network Analysis</i>   | Completed            | 2012 |
| 14. | Bachelor | Nurul Shafika Bt Che Mohd Azmi (147698) <i>Bluetooth based location detection</i>                   | Completed            | 2011 |
| 15. | Bachelor | Kee Lay Hoon (149666) <i>Rescue Applications (RA) – Wireless Sensor Networks</i>                    | Completed            | 2011 |
| 16. | Bachelor | Aressa Malenie Thurai Rajah (144581) <i>Performance Analysis of the A-Star Algorithm</i>            | Completed            | 2010 |
| 17. | Bachelor | Azyyati Adiah Binti Zazali (141974) <i>Performance Analysis of Triangulation Algorithm</i>          | Completed            | 2010 |

| No. | Course   | Name of Student and Project   | Status of Completion | Year |
|-----|----------|---|----------------------|------|
|     |          | <i>For Wireless Sensor Network</i>  |                      |      |
| 18. | Bachelor | How Kok Ping (143303) <i>Cohesive Mobility Algorithm for Mica2 Sensors</i>  | Completed            | 2010 |
| 19. | Bachelor | Phang Dicmun (143304) <i>Wireless Sensor Based Field Hockey Strategy System</i>   | Completed            | 2010 |
| 20. | Bachelor | Lum Kim Hoe (143345) <i>Low Level Abstraction Simulation of Wireless Cricket Mica 2 Sensor</i>  | Completed            | 2010 |
| 21. | Bachelor | Hii Ing Ing (144346) <i>Anchor Free Localization</i>  | Completed            | 2010 |
| 22. | Bachelor | Muzaiyanah binti Ahmad Supiana (140095) <i>Object Tracking with Mobility Prediction</i>   | Completed            | 2009 |
| 23. | Bachelor | Fazmima Bt Jaafara (135111) <i>Shortest Free Space Based Algorithms</i>   | Completed            | 2009 |
| 24. | Bachelor | Farazilawati Baizura Binti Mohd Poada (135188) <i>Collaborative Efforts</i>   | Completed            | 2009 |
| 25. | Bachelor | Masliza Bt Mahmuda (139931) <i>Wireless Sensor Based Field Hockey Strategy Systems</i>  | Completed            | 2009 |
| 26. | Bachelor | Norfadilah Binti Mohammada (135065) <i>WSN Power Consumption based Target Position algorithm</i>  | Completed            | 2009 |
| 27. | Bachelor | Kogeetha A/P Selvarajoo (137882) <i>Cricket Location Indoor Based System</i>  | Completed            | 2009 |
| 28. | Bachelor | Tan Chay Choon (114865) <i>Web based Application for Wireless Research Group</i>  | Completed            | 2006 |
| 29. | Bachelor | Lee Kok Yee (116196) <i>Online Community for Student UPM</i>  | Completed            | 2006 |
| 30. | Bachelor | Goh Hong Bee (116129) <i>Web Cam Monitoring</i>   | Completed            | 2006 |
| 31. | Bachelor | Ngoo Yik Shaw (119530) <i>Tetherless Computing: Performance Evaluation of Delay Tolerant Network on First Contact and Earliest Delivery Routing Algorithm</i> | Completed            | 2006 |
| 32. | Bachelor | Ahmad Syamil Bin Wahid (117296) <i>Real Time Car Navigation System</i>  | Completed            | 2006 |
| 33. | Bachelor | Chin Jian Hoong (116012) <i>Secure WEP Algorithms</i>   | Completed            | 2006 |
| 34. | Bachelor | Chow Yuen Shin (115611) <i>Secure Messenger Over WLAN</i>   | Completed            | 2006 |



| No. | Course   | Name of Student and Project  | Status of Completion | Year |
|-----|----------|--|----------------------|------|
| 35. | Bachelor | Yan Chen Fei (116225) <i>EasyPay RFID Debit Card System</i>                            | Completed            | 2006 |
| 36. | Bachelor | Lim Thye Peng (109672) <i>Performance Analysis of MAC portion of IEEE 802.11</i>       | Completed            | 2005 |
| 37. | Bachelor | Chua Siow Ling (110859) <i>Distributed Workgroup System</i>                            | Completed            | 2005 |
| 38. | Bachelor | Lim Guat Lan (109892) <i>Performance Analysis of the Wireless MAC protocol</i>         | Completed            | 2005 |
| 39. | Bachelor | Nurliyana Binti Kamarul Bahrin (108870) <i>Web-Based Appointment Scheduling System</i> | Completed            | 2005 |
| 40. | Bachelor | Noor Rasyada Zainol Rashid (109432) <i>Academic Advisor System</i>                     | Completed            | 2005 |
| 41. | Bachelor | Nor Hanie Omar (64887) <i>Routing Simulations Using C#</i>                             | Completed            | 2004 |
| 42. | Bachelor | Nazirah Izleen binti Idris (96999) <i>Handoff Algorithms Simulations</i>               | Completed            | 2004 |
| 43. | Bachelor | Johan Pinto (113230) <i>Web-Based Video Retrieval System</i>                           | Completed            | 2004 |
| 44. | Bachelor | Siti Nor Zalatul Binti Ramly (113209) <i>Research Matching System</i>                  | Completed            | 2004 |
| 45. | Bachelor | Norhaiza Binti Abdull Hamid (113232) <i>Intranet Security System</i>                   | Completed            | 2004 |
| 46. | Bachelor | Norziah Binti Abdul Rahman (113251) <i>Web Based NSA System</i>                        | Completed            | 2004 |
| 47. | Bachelor | Noorlisa Binti Sauni (113261) <i>ACE Simulator</i>                                     | Completed            | 2004 |
| 48. | Bachelor | Norjainawati Binti Mokhtar (113235) <i>Video Retrieval System</i>                      | Completed            | 2004 |
| 49. | Bachelor | Muhammad Dhiauddin Bin Md Saad (113269) <i>WAP Based Log-In System</i>                 | Completed            | 2004 |
| 50. | Bachelor | Ho Loong Seng (101378) <i>Remote Network Viewer</i>                                    | Completed            | 2003 |
| 51. | Bachelor | Nani Lee Yer Fui (100065) <i>Token Ring Simulator</i>                                  | Completed            | 2003 |
| 52. | Bachelor | Chin Woan Ling (101196) <i>Doctor Tracking Patient Application</i>                     | Completed            | 2003 |

| No. | Course   | Name of Student and Project  | Status of Completion | Year |
|-----|----------|--|----------------------|------|
| 53. | Bachelor | Wong Li Chen (10362)<br><i>Pocket PC Applications: Sales Automation</i>              | Completed            | 2003 |
| 54. | Bachelor | Lalitha N (90721)<br><i>Distributed Event Management System</i>                      | Completed            | 2003 |
| 55. | Bachelor | Ho Chin Hui (100999)<br><i>Computer Telephony Integration Servicer</i>               | Completed            | 2003 |
| 56. | Bachelor | Chong Lee Mi (100650)<br><i>Performance Analysis of MAC protocols</i>                | Completed            | 2003 |
| 57. | Bachelor | Leong Weai Hong (100065)<br><i>WAP Based Lecture Schedule</i>                        | Completed            | 2003 |
| 58. | Bachelor | Tham Kit Len (100097) <i>Real-Time Scheduling Algorithms for Network QoS</i>         | Completed            | 2003 |
| 59. | Bachelor | Lee Wai San (103672)<br><i>FSKTM On-Line Bulletin System</i>                         | Completed            | 2003 |
| 60. | Bachelor | Chua Soo Wai (103587)<br><i>Scheduling Algorithms</i>                                | Completed            | 2003 |
| 61. | Bachelor | Teh Chee Hong (100716)<br><i>Reservation Algorithms for Satellite Communications</i> | Completed            | 2003 |
| 62. | Bachelor | Ng Man Heng (100784)<br><i>Scheduling Algorithms</i>                                 | Completed            | 2003 |
| 63. | Bachelor | Yap Li Yee (100987)<br><i>Location Estimation Algorithms</i>                         | Completed            | 2003 |
| 64. | Bachelor | Shantini Tamil (101640)<br><i>Routing Simulator</i>                                  | Completed            | 2003 |
| 65. | Bachelor | Norziah Binti Abdul Rahman <i>Web Based NSA System</i>                               | Completed            | 2003 |

## E.2. INDUSTRIAL TRAINING EVALUATION

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| No. | Metric No. | Name                               | Year of Evaluation |
|-----|------------|------------------------------------|--------------------|
| 1.  | 162255     | Chia See Ming (Time Dotcom Berhad) | 2014               |
| 2.  | 159412     | Tan Xin Yi                         | 2013               |
| 3.  | 151766     | Putri Nor Atteya Binti Nor Azmi    | 2012               |
| 4.  | 151973     | Mohd Hafiz Bin Bahar               | 2012               |
| 5.  | 154373     | Wan Muhaimi Fatihi Bin Wan Mahmud  | 2012               |
| 6.  | 151493     | Muhamad Arif Raimi Bin Rosly       | 2012               |
| 7.  | 146437     | Mohd Niezam M                      | 2010               |
| 8.  | 150358     | Mohd Nazri N                       | 2010               |
| 9.  | 147492     | Mohd Nizar S                       | 2010               |
| 10. | 150347     | Md. Nasrein                        | 2010               |
| 11. | 110710     | Henry Chin                         | 2004               |
| 12. | 109702     | Wong Yong Wei                      | 2004               |
| 13. | 97122      | Siti Sherizan binti Hassan         | 2003               |
| 14. | 105848     | Ng Lay Fang                        | 2003               |
| 15. | 98581      | Hazmen Neazy Mat Noor              | 2003               |
| 16. | 97190      | Shahfinaz Mohd Radzi               | 2003               |
| 17. | 104161     | Shahrael Azahar Abd Rahman         | 2003               |
| 18. | 97120      | Norakmal Izan Jamalludin           | 2003               |

### E.3. CHAIRMAN OF PhD THESIS SUPERVISORY COMMITTEE

| No. | Program Level | Name of Students and Title of Thesis/Project  | Chairman / Member | Status (Completed/ Ongoing) | Year Graduated |
|-----|---------------|---|-------------------|-----------------------------|----------------|
| 1.  | PhD           | Safwan Ghaleb (Clustered Proxy Mobile IPv6)   | Chairman          | Completed                   | 2019           |
| 2.  | PhD           | Ali Mohamed E Ejmaa (Routing Algorithms in MANETs)  | Chairman          | Completed                   | 2017           |
| 3.  | PhD           | Hong Siaw Swin – (Obstacle Avoidance in Wireless Sensor Networks)   | Chairman          | Completed                   | 2017           |
| 4.  | PhD           | Zinah Rafea Ahmed (GS26841) (Frequency Domain and Time Domain Scheduling Techniques For Uplink Channels in Fourth Generation Networks)        | Chairman          | Completed                   | 2017           |
| 5.  | PhD           | Danial Naghshbandi (Scheduling Algorithms for WiMax)  | Chairman          | Completed                   | 2017           |
| 6.  | PhD           | Fahrul Hakim bin Huyop@Ayob (GS141516) (The Optimization of Traffic Allocation Problem in LEO Satellite by Using Genetic Algorithms Approach) | Chairman          | Completed                   | 2016           |
| 7.  | PhD           | Ibrahim Saidu (Quality of Service Management Algorithms in WiMAX Networks)  | Chairman          | Completed                   | 2016           |
| 8.  | PhD           | Adnan Jumaa Jabir Al-Humrany (Mobility Schemes in Clustered Proxy Mobile IPv6)  | Chairman          | Completed                   | 2015           |
| 9.  | PhD           | Mukhtar Mahmoud Yahya Ghaleb - (Data Gathering in Wireless Sensor Networks)   | Chairman          | Completed                   | 2014           |

| No. | Program Level | Name of Students and Title of Thesis/Project   | Chairman / Member | Status (Completed/ Ongoing) | Year Graduated |
|-----|---------------|--|-------------------|-----------------------------|----------------|
| 10. | PhD           | Idawaty binti Ahmad (GS14603) (Utility Accrual Scheduling Algorithms in Adaptive Real-Time Systems)              | Chairman          | Completed                   | 2013           |
| 11. | PhD           | Fuaad Hasan Mohammed (GS16282) Packet Switching Metro WDM Networks Performance Trade-Offs And Optimization       | Chairman          | Completed                   | 2012           |
| 12. | PhD           | Maher Ali Abdullah Al-Sanabani (GS13611) – “Mobility Prediction Based Resource Reservation in Cellular Networks” | Chairman          | Completed                   | 2008           |
| 13. | PhD           | Tariq Abdullah Ahmad Al-Ahdal (GS14177) (Adhoc on Demand Distance Vector Routing Algorithm)                      | Chairman          | Completed                   | 2008           |
| 14. | PhD           | Gabriel Fisayo   | Chairman          | Ongoing                     |                |
| 15. | PhD           | Azzyati Adiah  | Chairman          | Ongoing                     |                |
| 16. | PhD           | Amirah Alomari   | Chairman          | Ongoing                     |                |
| 17. | PhD           | Omar   | Chairman          | Ongoing                     |                |
| 18. | PhD           | Rozin  | Chairman          | Ongoing                     |                |
| 19. | PhD           | Ghaihab  | Chairman          | Ongoing                     |                |
| 20. | PhD           | Radzif   | Chairman          | Ongoing                     |                |

#### **E.4. CHAIRMAN OF MASTERS SUPERVISORY COMMITTEE**

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| <b>No.</b> | <b>Program</b> | <b>Name</b>   | <b>Chairman / Member</b> | <b>Status</b> | <b>Year of Graduation</b> |
|------------|----------------|---|--------------------------|---------------|---------------------------|
| 1.         | Master         | Azyyati Adiah bte Zazali<br>(Distance Vector-Hop<br>Range-Free Location<br>Algorithm for Wireless<br>Sensor Networks) | Chairman                 | Completed     | 2015                      |
| 2.         | Master         | Aneel Oad (GS20493)<br>(WiMax Scheduling<br>Algorithms)   | Chairman                 | Completed     | 2013                      |
| 3.         | Master         | Hilmy Nawawi (GS14393)<br>(Enhanced Adhoc on<br>Demand Routing)   | Chairman                 | Completed     | 2010                      |
| 4.         | Master         | Noor Azlan bin Ahmad<br>(Packet Lifetime Based<br>Adoc Routing Algorithms)  | Chairman                 | Completed     | 2008                      |
| 5.         | Master         | Norsalwati Nordin<br>(Medium Access Control<br>Algorithms)  | Chairman                 | Completed     | 2007                      |

#### E.5. MEMBER OF PhD SUPERVISORY COMMITTEE

| No. | Program | Name  | Chairman / Member | Status    | Year |
|-----|---------|---|-------------------|-----------|------|
| 1.  | PhD     | Saif M.KH Al-Alak (GS27832) Improve Authentication Technique on IEEE802.15.4 Wireless Sensor Network Using Multiple Key Protocol  | Member            | Completed | 2014 |
| 2.  | PhD     | Radhwan M Abdullah (GS21300) Fast Handover Technique in Heterogeneous Wireless Networks   | Member            | Completed | 2014 |
| 3.  | PhD     | Quresho Barkatullah (GS19687) High Speed TCP Congestion Control Algorithms For Single And Parallel Flows and Maintaining Fairness | Member            | Completed | 2014 |
| 4.  | PhD     | Sayed Mojtaba Seyed Zadegan Halaj (GS22728) Zero-Degree And Hop-Degree Models For Wireless Mesh Networks Backbone Design          | Member            | Graduated | 2014 |
| 5.  | PhD     | Amin Shokripur (GS19926) Job Scheduling in Heterogeneous Mobile Systems Using Divisible Load Theory                               | Member            | Graduated | 2014 |
| 6.  | PhD     | Mina Malekzadeh (GS19877) (DOS Attacks Prevention in IEEE 802.11 Wireless Networks)   | Member            | Completed | 2012 |
| 7.  | PhD     | Mohammed A A Radi (GS15805) – Transaction Management in Data Grid)  | Member            | Completed | 2009 |
| 8.  | PhD     | Ali Mohammed Ali (GS11497 AMtree Protocol : Incorporation of Multiple Sources)  | Member            | Completed | 2008 |
| 9.  | PhD     | Abdulbaset M.Nasr ((GS12544) (Lip Movement Recognition))  | Member            | Completed | 2007 |
| 10. | PhD     | Mohammed Abdul Hameed Al-Shabi (GS12354 (Routing in Optical Multistage Interconnection Networks Using New Approach))              | Member            | Completed | 2007 |

| No. | Program | Name  | Chairman / Member | Status           | Year        |
|-----|---------|---|-------------------|------------------|-------------|
| 11. | PhD     | <b>Sahar Abdul Aziz Mageed Ali (GS13273 (Implementation and Performance Evaluation of Route Optimization in Mobile IP)</b>      | <b>Member</b>     | <b>Completed</b> | <b>2007</b> |
| 12. | PhD     | <b>Mohamed Awad Elshaikh (GS11465 (Design an Efficient Traffic Scheduling and Shaping Algorithms in a Diffserv Networks)</b>    | Member            | <b>Completed</b> | <b>2007</b> |
| 13. | PhD     | <b>Makarem Mohammed Abdulqader (GS12511 (OSPF Weight Setting Using Link Frequency))</b>   | Member            | <b>Completed</b> | <b>2007</b> |
| 14. | PhD     | <b>Essam Fathi Natsheh (GS13332 (Application of Fuzzy Logic System in Wireless Adhoc Communication Networks))</b>               | Member            | <b>Completed</b> | <b>2007</b> |
| 15. | PhD     | Belal Mohammad Ahmad (A Hybrid Algorithm for Locating Mobile Stations in Cellular Networks)                                     | Member            | Ongoing          | -           |
| 16. | PhD     | Hassen Abed Almotaleb Abdulla (Integrated Reactive and Proactive Routing Protocol For Hybrid Wireless Mesh Networks)            | Member            | Ongoing          | -           |
| 17. | PhD     | Seyed Reza Kamel Tabbakh Farizani (Design and Development of Data Storage Technique on Ipv6 Networks)                           | Member            | Ongoing          | -           |
| 18. | PhD     | Nadim K M Madi.(GS35243). Multi-Cell Scheduling Modeling in 4G LTE Advanced Cellular Systems and Its Impact in QoS Requirements | Member            | Ongoing          | -           |
| 19. | PhD     | Mahmoud Sami.(GS33339). Energy Efficiency Optimization of MAC Protocol for Cooperative Wireless Networks                        | Member            | Ongoing          | -           |
| 20. | PhD     | Mohammad Ali Khoshkholghi.(GS33366). Distributed Data Service Recovery in Cloud Computing                                       | Member            | Ongoing          |             |



| No. | Program | Name  | Chairman / Member | Status  | Year |
|-----|---------|---|-------------------|---------|------|
| 21. | PhD     | Farzaneh Masoumiyan.(GS33379) Radio Resource Management in Relay-Based Cellular Network   | Member            | Ongoing |      |
| 22. | PhD     | Mohd Hairy Hj Abdullah. (GS34612). Resource management in Cloud Computing   | Member            | Ongoing |      |
| 23. | PhD     | Ayyoub Akbari Moghanjoughi (GS26875). QoS Over IPv6 Based Wireless Heterogeneous Networks   | Member            | Ongoing |      |
| 24. | PhD     | Ali Mohammed Hasan Shlash (GS28522) The Performance of LFU Algorithm in Proxy Cache   | Member            | Ongoing |      |
| 25. | PhD     | Nori Mohammad Abdulkarem Al-Kharasani (GS28518). Performance Evaluation Routing and Centralized Scheduling Algorithm in WiMAX Mesh Networks | Member            | Ongoing |      |
| 26. | PhD     | Omar Hussein Salman (GS30884). Intelligent Healthcare Services Provisioning Using Multisource Data Fusion                                   | Member            | Ongoing |      |
| 27. | PhD     | Mohammed Abdulrabu Manea Al-Saih (GS30903). Load balancing in Cloud Computing.  | Member            | Ongoing |      |
| 28. | PhD     | Umar, Faruku Ambursa (GS31123). A Hybrid Fault-Tolerant Scheduling For Computational Grid Environment.                                      | Member            | Ongoing |      |
| 29. | PhD     | Abudhahir Buhari (GS20880). Quantum Key Distribution Protocol.  | Member            | Ongoing |      |
| 30. | PhD     | Hayder Natiq Jasem (GS19548). Improving The Efficiency and Fairness of AIMD Based Congestion Avoidance Algorithms                           | Member            | Ongoing |      |

#### E.6. MEMBER OF MASTERS SUPERVISORY COMMITTEE

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| No. | Program | Name   | Chairman / Member | Status      | Year |
|-----|---------|--|-------------------|-------------|------|
| 1.  | Master  | Nooshin Nokhanji (GS32968) A Cluster Based Routing Protocol for Wireless Sensor Networks                                       | Member            | Completed   | 2014 |
| 2.  | Master  | Maryam Tanha (GS28856) Secure And Self-Healing Smart Grid Control Centers Using Intrusion Tolerance                            | Member            | Completed   | 2014 |
| 3.  | Master  | Farzaneh Abed (GS15783 ) Bitwise-Based Routing Algorithms in Optical Multistage Interconnection Networks                       | Member            | Completed   | 2006 |
| 4.  | Master  | Mahmoud Khaled Emran Al-Ewiwi (GS14418 (Implementing Market-Based Scheduling Algorithm on a Globally Distributed Web Servers)) | Member            | Completed   | 2006 |
| 5.  | Master  | Wee Kuok Wee (GS13067 (Enhancement of Dynamic Bandwidth Allocation in ATM Networks)  | Member            | Completed   | 2005 |
| 6.  | Master  | Majid Otofati Shamsi (Decrease Overhead on S-Bgp To Enhance Adaption On Internet)  | Member            | In Progress | -    |
| 7.  | Master  | Husam Kareem Farhan.(GS33970). Modelling and Simulation of Two Stage Routing Protocol  | Member            | In Progress |      |

### E.7. SUPERVISION OF MASTERS WITHOUT THESIS STUDENTS (PROJECT)

| No. | Name                                       | Project Title   | Year |
|-----|--|---|------|
| 1.  | Ghassan A. O. Abusamhadana (GS41342)       | Performance Analysis of Refining TCP's RTT Mechanism in Wireless LAN                  | 2016 |
| 2.  | Olorungbade Opeyemi Oluwanishola (GS33991) | Mobility Based Sink Management in Wireless Sensor Network                             | 2014 |
| 3.  | Dauren Dauletuly (GS34277)                 | Downlink Scheduling Algorithms For Lite Networks                                      | 2014 |
| 4.  | Maharazu Mamman (GS31028)                  | Adaptive Packet Scheduling for the Uplink Traffic in IEEE802.16e Networks             | 2013 |
| 5.  | Sadra Mohammadalian (GS30931)              | ACT: Arranging Cluster Sizes and Transmission Ranges for WSNs                         | 2013 |
| 6.  | Noashikin binti Yahya (GS30604)            | Dynamic Contention Window Adaptation in IEEE802.11 WLAN                               | 2013 |
| 7.  | Mahda Noura (GS31703)                      | A Discrete Event Simulation for Hierarchical Mobile IP                                | 2013 |
| 8.  | Soulmaz Salehian (GS26871 )                | Enhanced Energy-Balanced Unequal Clustering Protocol In Wireless Sensor Networks      | 2012 |
| 9.  | Farzaneh Masoumiyan (GS26932)              | Enhanced Opportunistic Scheduling And Spectrum Reuse In Relay-Based Cellular Networks | 2012 |
| 10. | Samera H. Mahmud Hamad                     | An Estimation of Sensor Energy Consumption  | 2010 |
| 11. | Azlina binti Awang Ahmad                   | Enhanced Cricket/Mica2 Based Cooperative Nodes Using A* Algorithm                     | 2010 |
| 12. | Siti Nurbahyah binti Hamdan                | WiHoc V.1 Enhanced Localisation Using Triangular Distance Estimation                  | 2010 |
| 13. | Kamal Ali Ahmed Alezabi                    | Performance Evaluation of Scheduling Algorithms in WiMAX Networks                     | 2010 |
| 14. | Aida Al-Samawi                             | Enhanced Uplink Scheduling for WiMAX Networks   | 2010 |
| 15. | Danial Naghshbandi                         | Bandwidth Allocation Algorithm for WiMAX Base Stations                                | 2009 |
| 16. | Mustafa Iessa Sabaa                        | Self-Selecting Paths for Wireless Sensor Network Routing                              | 2009 |
| 17. | Fairuz Affandi bin Abdul Aziz              | WiMAX Resource Scheduling Algorithms  | 2009 |
| 18. | Mohd. Azrul Azmi bin Azman                 | Anchor Free Distributed Localization in Sensor Networks                               | 2009 |
| 19. | Omar Zaid Ahmad Abualkishik                | Performance Analysis of Reduced RBF Localization Algorithm                            | 2009 |

|     |                         |   |      |
|-----|-------------------------|---|------|
| 20. | Ng Sok Won              | DSR Enhancement Using Process Time  | 2008 |
| 21. | Sangeetha Thavamani     | Wireless Sensor Localization Algorithms   | 2008 |
| 22. | Mohammed Ahmed Al-Maqri | Wireless Sensor Tracking Algorithms   | 2008 |
| 23. | Norehan Abdul Aziz      | Avoidance and Energy Efficient Routing Protocol for Wireless Sensor Networks with a Mobile Sink | 2008 |
| 24. | Suzana Alias            | Sink-to-Sensors Congestion Controls   | 2008 |
| 25. | Mubark Mohd. Elmubark   | Designing A New Mechanism To Conduct Multipoint Conference Using SIP                            | 2006 |
| 26. | Christina Woo Yee Lin   | The Network Generator Topology Interface  | 2006 |
| 27. | Fadzlina Mohammad Azmi  | Reliability In Mobile Communication Devices Using Mobile IPV6                                   | 2006 |
| 28. | Azliyah bt. Wagiman     | Fairness Over The Internet Explicit Congestion Notification (ECN)                               | 2006 |
| 29. | Nor Azlan Ahmad         | Wireless Adhoc Routing Algorithm  | 2005 |
| 30. | Norsalwati Nordin       | Wireless MAC 802.11 Algorithm   | 2005 |
| 31. | Fuaad Abdul Razak       | Cohesive Token Ring Algorithm   | 2005 |
| 32. | Moutaz Salleh           | Enhanced QoS AED Scheduling Algorithm for Real-Time Network Traffic                             | 2004 |
| 33. | Irene Wee Siew Poh      | Fair Scheduling for Multiple Channel Wireless Local Area Networks                               | 2003 |
| 34. | Murali Krishnan         | MULTIFIT-COM in Single Channel Wireless Local Area Networks                                     | 2003 |
| 35. | Renu a/p Vahmanithy     | Dynamic resource reservation utilizing frame prediction strategies                              | 2003 |
| 36. | Ho Mei Guat             | Air Traffic Control Real-Time Simulation  | 2003 |
| 37. | Liang Huey Woan         | Discrete Event Simulation for Traffic Control   | 2003 |



## CURRICULUM VITAE

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**PROFESSOR DR SHAMALA K SUBRAMANIAM**

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FACULTY OF COMPUTER SCIENCE AND INFORMATION TECHNOLOGY  
UNIVERSITI PUTRA MALAYSIA**

### F. PUBLICATIONS

## F. PUBLICATIONS

### F.1. CITED JOURNALS (SCORPUS) / IMPACT FACTOR (ISI THOMPSON) JOURNALS

| No. | Name of Writer (s)  | Year Published | Title  | Name of Journal  | Volume Number | Page Number   |
|-----|---|----------------|--|------------------|---------------|---------------|
| 1.  | Badeel, Rozin; Subramaniam, Shamala K.; Hanapi, Zurina Mohd; Muhammed, Abdullah           | 2021           | A Review on LiFi Network Research: Open Issues, Applications and Future Directions                         | Applied Sciences | 11 (23)       | 11118         |
| 2.  | Amirah Alomari, Shamala K. Subramaniam, Normalia Samian, Rohaya Latip, Zuriati Zukarnain: | 2021           | Resource Management in SDN-Based Cloud and SDN-Based Fog Computing: Taxonomy Study.                        | Symmetry         | 13(5)         | 734           |
| 3.  | Azyyati Adiah Zazali, Shamala K. Subramaniam, Zuriati Ahmad Zukarnain:                    | 2020           | Flood Control Distance Vector-Hop (FCDV-Hop) Localization in Wireless Sensor Networks.                     | IEEE Access      | 8             | 206592-206613 |
| 4.  | Safwan M. Ghaleb, Shamala Subramaniam, Mukhtar Ghaleb, Ali Mohamed E. Ejmaa: Comput.      | 2019           | An Efficient Group-Based Control Signalling within Proxy Mobile IPv6 Protocol.                             | Computers        | 8(4)          | 75            |
| 5.  | Mukhtar Ghaleb, Shamala Subramaniam, Safwan M. Ghaleb:                                    | 2019           | An Adaptive Data Gathering Algorithm for Minimum Travel Route Planning in WSNs Based on Rendezvous Points. | Symmetry         | 11            | 1326          |
| 6.  | Adnan J. Jabir, Subramaniam Shamala, Zuriati Zukarnain, Nawa Hamid:                       | 2018           | A Comprehensive Survey of the Current Trends and Extensions for the Proxy Mobile IPv6 Protocol.            | IEEE Syst. J.    | 12(1)         | 1065-1081     |

| No. | Name of Writer (s)   | Year Published | Title   | Name of Journal  | Volume Number | Page Number |
|-----|--|----------------|---|--|---------------|-------------|
| 7.  | Safwan M. Ghaleb, Shamala Subramaniam, Zuriati Ahmad Zukarnain, Abdullah Muhammed:     | 2018           | Load balancing mechanism for clustered PMIPv6 protocol.   | EURASIP J. Wirel. Commun. Netw.  |               | 260         |
| 8.  | Safwan M. Ghaleb, Shamala Subramaniam, Zuriati Ahmad Zukarnain, Abdullah Muhammed:     | 2018           | Load balancing mechanism for clustered PMIPv6 protocol.   | EURASIP J. Wirel. Commun. Netw.  |               | 135         |
| 9.  | Mukhtar Ghaleb, Emad A. Felemban, Shamala Subramaniam, Adil A. Sheikh, Saad Bin Qaisar | 2017           | A Performance Simulation Tool for the Analysis of Data Gathering in Both Terrestrial and Underwater Sensor Networks | IEEE Access  | 5             | 4190-4208   |
| 10. | Safwan M. Ghaleb, Shamala Subramaniam, Zuriati Ahmad Zukarnain, Abdullah Muhammed      | 2016           | Mobility management for IoT: a survey   | EURASIP J. Wireless Comm. and Networking                               | 165           | 1-25        |
| 11. | Adnan J. Jabir, S. Shamala, Z. Zuriati and Nawa Hamid                                  | 2016           | A Comprehensive Survey of the Current Trends and Extensions for the Proxy Mobile IPv6 Protocol                      | IEEE Systems Journal (IF: 1.98; Q1)                                    | No.99         | 1-17        |
| 12. | Ibrahim Saidu Shamala Subramaniam, Azmi Jaafar and Zuriati Zukarnain                   | 2015           | A QoS-Aware CAC with Bandwidth Reservation and Degradation Scheme in IEEE 802.16e Networks.                         | Wireless Personal Communications (IF:0.653; Q3)                        | Vol.2 No.4    | 267302693   |
| 13. | Aneel Oad, Shamala Subramaniam and Zuriati Zukarnain                                   | 2015           | Enhanced Uplink Scheduling Algorithm for Efficient Resource Management in IEEE 802.16                               | Eurasip Journal of Wireless Communication and Networking (IF:0.72; Q3) | Vol.2015 No.3 | 1-12        |
| 14. | Ibrahim Saidu Shamala  | 2015           | An Efficient Battery Lifetime Aware Power   | Wireless Personal Communications (IF:0.653; Q3)                        | Vol.80 no.1   | 29-49       |

| No. | Name of Writer (s)   | Year Published | Title   | Name of Journal   | Volume Number    | Page Number |
|-----|--|----------------|---|---|------------------|-------------|
|     | Subramaniam, Azmi Jaafar and Zuriati Zukarnain                                     |                | Saving (EBLAPS) Mechanism in IEEE802.16e Networks   |   |                  |             |
| 15. | Kar Hoey, Shamala Subramaniam and Gopinath Rao Sinniah                             | 2015           | Node Mobility Support Between Multi-hop 6LoWPAN Networks Based on Proxy Mobile IPv6             | Wireless Personal Communications (IF:0.653; Q3)                                       | Vol.85 No. 3     | 959-986     |
| 16. | Ibrahim Saidu Shamala Subramaniam, Azmi Jaafar and Zuriati Zukarnain               | 2014           | A Load Aware Weighted Round-Robin Algorithm for IEEE 802.16 Networks                            | EURASIP Journal on Wireless Communication and Networking                              | Vol.2014 No. 226 | 1-33        |
| 17. | Mukhtar Ghaleb, Shamala Subramaniam, Mohamed Othman, Zuriati Zukarnain:            | 2014           | Predetermined path of mobile data gathering in wireless sensor networks based on network layout | EURASIP Journal on Wireless Communication and Networking                              | Vol. 2014 No.51  | 1-18        |
| 18. | Adnan J. Jabir, Subramaniam Shamala, Z. Zuriati, Nor Asilah Wati Abdul Hamid       | 2014           | A Low Cost Route Optimization Scheme for Cluster-Based Proxy MIPv6 Protocol.                    | Wireless Personal Communications  | Vol. 74 No. 2    | 499 - 518   |
| 19. | Adnan J Jabir, S. Shamala, Z. Zuriati and NAWA Hamid                               | 2014           | Fast Handoff Scheme for Cluster-Based Proxy Mobile IPv6 Protocol                                | IEICE Transaction on Fundamentals /Communications /Electronics/ Information & Systems | Vol. E85         | 1-11        |
| 20. | Zinah Rafea Ahmed, Shamala K. Subramaniam, Zuriati Ahmad Zukarnain, Mohamed Othman | 2014           | Best Minimum Summation Scheduler for Long Term Evolution  | Wireless Personal Communications  | Vol. 77 No. 3    | 2271-2289   |
| 21. | M. Ghaleb, S. Subramaniam, M. Othman, Z. Zukarnain,                                | 2014           | Static and Mobile Data Gathering Techniques in Wireless Sensor Networks: A Survey               | IJACT: International Journal of Advancements in Computing Technology                  | Vol. 6 No. 3     | 47 - 60     |



| No. | Name of Writer (s)   | Year Published | Title   | Name of Journal   | Volume Number                  | Page Number |
|-----|--|----------------|---|---|--------------------------------|-------------|
| 22. | Nooshin Nokhanji, Zurina Mohd Hanapi, Shamala Subramaniam, Mohamad Afendee Mohamed         | 2014           | A Scheduled Activity Energy Aware Distributed Clustering Algorithm for Wireless Sensor Networks with Nonuniform Node Distribution                 | International Journal of Distributed Sensor Networks      | Vol. 2014                      | 1-13        |
| 23. | Salman OH, Rasid MF, Saripan MI, Subramaniam SK.   | 2014           | Multi-sources data fusion framework for remote triage prioritization in telehealth  | Journal of Medical Systems                                | Vol. 38 No.9                   | 1-23        |
| 24. | Husam Kareem, S.J. Hashim, Sali, Shamala Subramaniam                                       | 2014           | A Survey Of State Of The Art: Hierarchical Routing Algorithms For Wireless Sensor Networks  | Journal of Theoretical and Applied Information Technology | Vol.62 no.3                    | 769-781     |
| 25. | Abdullah, R.M., Abdullah, A., Hamid, N.A.W.A., Othman, M. and Subramaniam, S.              | 2014           | The Rapid Vertical Handover for Efficient IPv6 Mobility Support in Heterogeneous Wireless Networks  | Arabian Journal for Science and Engineering               | Vol.39, no.2                   | 851-860     |
| 26. | Abdullah, R.M., Abdullah, A., Hamid, N.A.W.A., Othman, M. and Subramaniam, S.              | 2014           | A Network Selection Algorithm Based on Enhanced Access Router Discovery in Heterogeneous Wireless Networks  | Wireless Personal Communications                          | DOI: 10.1007/s 1277-014-160605 |             |
| 27. | Danial Naghshbandi, Shamala Subramaniam, Saeed Rahimi Moghadam                             | 2013           | An Event-Driven Simulation for Highest Urgency First (HUF): A Latency and Modulation Aware Bandwidth Allocation Algorithm for WiMAX Base Stations | Wireless Personal Communications                          | Vol.69 No.1                    | 39-52       |
| 28. | Faraneh Zarafshan, Abbas Karimi, S. A. R. Al-Haddad, M. Iqbal Saripan, Shamala Subramaniam | 2013           | Ancestral Dynamic Voting Algorithm for Mutual Exclusion in Partitioned Distributed Systems.   | International Journal of Distributed Sensor Networks      | Vol. 2013                      | 1-15        |

| No. | Name of Writer (s)  | Year Published | Title  | Name of Journal   | Volume Number     | Page Number |
|-----|---|----------------|--|---|-------------------|-------------|
| 29. | Mojtaba Seyedzadegan, Mohamed Othman, Borhanuddin Mohd Ali, Shamala Subramaniam:  | 2013           | Zero-Degree algorithm for Internet GateWay placement in backbone wireless mesh networks.                     | Journal Network and Computer Applications                 | Vol. 36 No.6      | 1705-1723   |
| 30. | Qureshi, B., Othman, M., Subramaniam, S. and Wati, N.A.                           | 2013           | QTCP: Improving Throughput Performance Evaluation with High-Speed Networks                                   | Arabian Journal for Science and Engineering               | Vol.38 No.10      | 2662-2691   |
| 31. | Adnan J Jabir, Shamala K Subramaniam, Zuriati Z Ahmad and Nor Asilah Wati A Hamid | 2012           | A Cluster-Based Proxy Mobile IPv6 for IP-WSNs  | EURASIP Journal on Wireless Communications and Networking | Vol 2012, No. 173 | 1-17        |
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| 2.  | Amin Shokripour, Mohamed Othman, Hamidah Ibrahim, Shamala Subramaniam:                 | 2013           | A New Method for Job Scheduling in Two-Levels Hierarchical Systems                         | Springer-Verlag;<br>Vol. 7803, pp 345-355<br>Lecture Notes in Artificial Intelligence and Lecture Notes in Bionformatics<br>Lecture Notes in Computer Science                             |
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| 8.  | Shokripour, Amin, Mohamed Othman, Hamidah Ibrahim, and Shamala Subramaniam                               | 2011           | A method for scheduling heterogeneous multi-installment systems.  | Springer-Verlag;<br>Vol. 6592, pp 31-41<br>Lecture Notes in Artificial Intelligence and Lecture Notes in Bionformatics Lecture Notes in Computer Science   |
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#### F.4. PROCEEDINGS

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| 12. | Roger, C., S. Subramaniam, and A. Amri.  | 2011           | Dynamic layout algorithms for Wireless Field Hockey Strategy System.                         | IEEE Conference on Open Systems (ICOS)  | 185-189     |

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| 15. | Mogaibel, HA-A., Mohamed Othman, Shamala Subramaniam, and N. A. W. Abdul Hamid.                 | 2010           | Channel Reservation Scheme Based on AODV Routing Protocol for Common Traffic in Wireless Mesh Network.                                 | 2 <sup>nd</sup> International Conference In Computer and Network Technology (ICCNT)                             | 168-174     |
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| 21. | Maher Al-Sanabani, Subramaniam Shamala, Mohamed Othman, Zuriati Zukarnain:              | 2008           | Adaptive Resource Allocation Scheme Based on Call Admission Control and Mobility Prediction for Multimedia Services in Wireless Cellular Networks | International Conference on Computer and Communication Engineering (UCCCE08), Kuala Lumpur  | 698-701     |
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| 23. | Abdullah, Monir, Mohamed Othman, Hamidah Ibrahim, and Shamala Subramaniam               | 2008           | A new load balancing scheduling model in data grid application  | International Symposium In Information Technology   | 1-5         |
| 24. | Abdullah, Monir, M. O. H. A. M. E. D. Othman, Hamidah Ibrahim, and Shamala Subramaniam. | 2008           | Simulated annealing algorithm for scheduling Divisible Load in large scale data grids   | International Conference In Computer and Communication Engineering (ICCCE)  | 1032-1036   |
| 25. | Al-Sharafi, Ali M., Mohamed Othman, Md Nasir Sulaiman, and Shamala Subramaniam.         | 2008           | Modifying the multicast tree in AMTree protocol using random core selection   | International Conference In Computer and Communication Engineering. (ICCCE)   | 323-327     |



| No. | Name of Writer(s)  | Year Published | Title  | Name of Seminar/Conference   | Page Number |
|-----|--|----------------|--|--|-------------|
| 26. | Nasr, A. M., Abd Rahman Ramli, M. Hamiruce, and S. K. Subramaniam.                 | 2008           | Audio-Visual Speech Processing Framework for Lip Reading.  | 3rd International Conference In Information and Communication Technologies: From Theory to Applications. (ICTTA) |             |
| 27. | Alahdal, Tariq, Shamala Subramaniam, Mohamad Othman, and Zuriati Zukarnain.        | 2007           | An adaptive reliable multicast protocol in ad hoc networks   | IEEE International Conference In Telecommunications and Malaysia International Conference on Communications      | 68-74       |
| 28. | Maheer Al-Sanabani, Subramaniam Shamala, Mohamed Othman, Zuriati Zukarnain         | 2007           | An Enhanced Bandwidth Reservation Scheme Based on Road Topology Information for QoS Sensitive Multimedia Wireless Cellular Networks. | International Conference on Computer Science and Its Applications, Kuala Lumpur, Aug 6 – 9                       | 261-274     |
| 29. | Mohammed Radi, Ali Mamat, Mustafa Mat Deris, Hamidah Ibrahim, Subramaniam Shamala  | 2007           | Update Propagation Technique for Data Grid   | International Conference on Computer Science and Its Applications, Kuala Lumpur, Aug 6 – 9                       | 115-127     |
| 30. | Nordin, N., S. Subramaniam, and M. Othman.   | 2007           | Adaptive bandwidth allocation scheme for wireless networks   | IEEE International Conference In Telecommunications and Malaysia International Conference on Communications      | 764-769     |
| 31. | Seyedzadegan, Mojtaba, Mohamed Othman, Shamala Subramaniam, and Zuriati Zukarnain. | 2007           | The TCP fairness in WLAN: a review   | IEEE International Conference In Telecommunications and Malaysia International Conference on Communications.     | 644-648     |

| No. | Name of Writer(s)  | Year Published | Title  | Name of Seminar/Conference  | Page Number |
|-----|--|----------------|--|---|-------------|
| 32. | Noor Azlan Ahmad, Shamala Subramaniam and Jalil Md. Desa         | 2007           | Optimizing the rebroadcast of ad-hoc on demand distance vector (AODV) routing protocol                     | The Fifth International Conference on Information Technology in Asia 2007 Kuching, Sarawak, Malaysia        | 84-88       |
| 33. | Monir Abduh, M. Othman, Hamidah Ibrahim and Shamala Subramaniam  | 2007           | Improved Genetic Algorithm for Scheduling Divisible Data Grid Application                                  | IEEE International Conference In Telecommunications and Malaysia International Conference on Communications | 461-465     |
| 34. | Ali M AL Sharafi, M. Othman, Shamala Subramaniam, Nasir Sulaiman | 2007           | Investigating Multicast Tree with Multiple Sources in AMTree Protocol                                      | IEEE International Conference In Telecommunications and Malaysia International Conference on Communications | 729-732     |
| 35. | M. Sanabani, S. Shamala, M. Othman and Z. Zukarnain              | 2006           | Mobility Prediction Scheme for Handoff in Multimedia Wireless/Mobile Cellular Networks                     | International Conference on Advanced Technologies in Telecommunications and Control Engineering (ATTCE2006) | 1-9         |
| 36. | M. Sanabani, S. Shamala, M. Othman and Z. Zukarnain              | 2006           | QoS Provisioning for Adaptive Multimedia Services in Wireless/Mobile Cellular Networks                     | International RF and Microwave Conference Proceedings, Putrajaya, Malaysia                                  | 381-385     |
| 37. | N.Nordin, S. Subramaniam and M. Othman                           | 2006           | Cooperative Bandwidth Allocation Scheme  | MMU International Symposium on Information and Communications Technologies (M2USIC)                         | 222-228     |
| 38. | M. Sanabani, S. Shamala, M. Othman and Z. Zukarnain              | 2006           | Adaptive Resource Allocation Algorithm at Connection Level in Multimedia Wireless/Mobile Cellular Networks | International Conference on Network and Mobile Computing (NMC2006)  | 1-8         |

| No. | Name of Writer(s)  | Year Published | Title  | Name of Seminar/Conference   | Page Number |
|-----|--|----------------|--|--|-------------|
| 39. | N.Nordin, S. Subramaniam and M. Othman                                 | 2006           | Adaptive Correlated Misbehavior for IEEE 802.11b   | International Conference on Computer & Communication Engineering (ICCCE '06). Kuala Lumpur                                 | 621-625     |
| 40. | Tariq A., S. Shamala, M. Othman, and Z. Zukarnain                      | 2006           | An Adaptive Buffer Management for Reliable Multicast Protocol In Ad Hoc Networks             | International Conference on Advanced Technologies in Telecommunications and Control Engineering (ATTCE2006)                | 68-74       |
| 41. | Saleh, M., Othman, Z. and Shamala S.                                   | 2006           | FCFS Priority-Based: An Adaptive Approach in Scheduling Real-Time Network Traffic            | IASTED International Conference on Networks and Communication Systems  | 235-239     |
| 42. | Saleh, M., Othman, Z. and Shamala S.                                   | 2006           | Hierarchical AED: An Approach for Scheduling Real-Time Network Traffic                       | IASTED International Conference on Modeling and Simulation   | 219-225     |
| 43. | Noor Azlan Ahmad and Shamala Subramaniam                               | 2006           | Enhancement of Ad-hoc On-demand Distance Vector (AODV) Routing Protocol – A Review           | International Conference on Network and Mobile Computing   | -           |
| 44. | Noorsalwati Nordin; Shamala Subramaniam; Mohamed Othman; Rozita Johari | 2005           | Discrete Event Simulation Modeling of Wireless Medium Access Control Protocol                | Proceedings of the Association of Engineering Education in South East Asian, East Asia and the Pacific Conference (AESEAP) | 1-6         |
| 45. | Maher, S. Shamala, M. Othman and R. Johari,                            | 2005           | Modeling and Simulation of Mobility Based Adaptive Reservation in Wireless Cellular Networks | International Conference AEESAP 2005, Kuala Lumpur   | 1-7         |

| No. | Name of Writer(s)  | Year Published | Title   | Name of Seminar/Conference  | Page Number     |
|-----|--|----------------|---|---|-----------------|
| 46. | M. Sanabani, S. Shamala, M. Othman and J. Desa                             | 2005           | A Capable Location Prediction and Bandwidth Reservation Scheme for Multimedia in Mobile Cellular Networks | Asia – Pacific Conference on Applied Electromagnetics Proceedings, Johor Bahru, Malaysia  | 351-355         |
| 47. | Elshaikh, M.A., Othman, M., Shamala S., Johari, R.                         | 2005           | Enhanced TSWTCM to Improve Fairness in DiffServ Networks  | 13 <sup>th</sup> IEEE International Conference on Networks jointly held with the 7 <sup>th</sup> IEEE Malaysia International Conference on Communications | 302-306         |
| 48. | Bamatraf, Makarem, Mohamed Othman, Rozita Johari, and Shamala Subramaniam. | 2005           | Optimizing paths in OSPF routing.   | 13 <sup>th</sup> IEEE International Conference on Networks jointly held with the 7 <sup>th</sup> IEEE Malaysia International Conference on Communications | 602-606         |
| 49. | Shamala, S., M. Othman, M.Y.Saman & R. Johari                              | 2005           | Dynamic Rate Based Scheduler  | IASTED International Conference on Network and Communication Systems, Krabi, Thailand   | 464-167         |
| 50. | Shamala, S. M.Othman, R.Johari and M.Yazid                                 | 2004           | Semi-Markov Modeling for Network Switches   | 9th Asian Technology Conference in Mathematics, Singapore   |                 |
| 51. | S.Shamala, M.Othman, R.Johari and M.Yazid                                  | 2003           | Analytical Modeling of Dynamic Resource Reservation Algorithms Implemented in IP Switches                 | International Conference On Research And Education In Mathematics, Kuala Lumpur   | 312-316         |
| 52. | S.Shamala, A.K.Ramani, M.Y.Saman and M.Othman                              | 2000           | Pro-Active QoS Scheduling Algorithms for Real-Time Multimedia Applications in Communication System        | IEEE Region 10 Annual International Conference / TENCON 2000 , Kuala Lumpur   | II-466 – II-471 |

**F.5. OTHER EQUIVALENT OUTCOMES (MONOGRAPH/MODULE/POPULAR WRITING & ARTICLE/DESIGN ETC)**

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| No. | Name of Writer(s)                       | Category of Outcome       | Year Published |
|-----|---|---------------------------|----------------|
| 1.  | National Fitness Council Magazine (NFC) | Popular Writing & Article | 2007           |
| 2.  | Malaysia Today Newspaper (Article)      | Popular Writing & Article | 2006           |



## CURRICULUM VITAE

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UNIVERSITI PUTRA MALAYSIA**

**G. CONSULTATIONS**

**H. PRODUCTS**

## G. CONSULTATIONS

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| No. | Project Details   |
|-----|---|
| 1   | Ministry of Youth and Sports – Member of the Technical / Working Committee of the Administration of the Project Deployment of the Integrated Sports Management System. (Project Value : RM13 Million) |
| 2   | Ministry of Youth and Sports Integrated Sports Management System User Requirement Specifications (Project Value : RM150,000)  |
| 3   | Integrated Sports Management Software for the National Sports Council (Project Value: RM498,700)  |
| 4   | Malaysian Athletic Federation electronic Platform (Project Value: RM10,000)   |
| 5   | National Sports Institute (NSI) – Universiti Putra Malaysia Sports Leadership Empowerment Series  |

## H. PRODUCT

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| No. | Project Details   |
|-----|---|
| 1   | Ministry of Youth and Sports Integrated Sports Management System User Requirement Specifications  |
| 2   | Malaysian Contingent Portal – Management System : SEA Games 2015  |
| 3   | Malaysian Athletic Federation Portal  |
| 4   | National Sports Institute (NSI) – Universiti Putra Malaysia Sports Technology Certification Program   |
| 5   | 1MAS Hockey Portal  |
| 6   | Copyright for Discrete Event Simulator for Cohesive Token Passing Algorithm for Internet Protocol (IP)  |
| 7   | Paten Intelligent services provisioning of medical sensors in SMART healthcare architecture using multisource data fusion and priority code techniques. |



## **CURRICULUM VITAE**

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UNIVERSITI PUTRA MALAYSIA**

### **I. RESEARCH RECOGNITION**



## I. RESEARCH RECOGNITION

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| No. | Level         | Role                         | Award/ Recognition  | Organization Awarded  | Date                           |
|-----|---------------|------------------------------|---|---|--------------------------------|
| 1.  | National      | Chairman of Committee        | Research and Education Committee  | National Sports Institute   | 2015-2017                      |
| 2.  | International | Member of Advisory Board     | Second National Conference on Emerging Trends in Information and Communication Technology (NCETCT-2014)                                 | The Faculty of Computer Applications of Marwadi Education Foundation, Rajkot, India | 2014                           |
| 3.  | National      | Main Researcher              | Malaysia as a Developed Nation: The Role of Research Universities' Research Universities' Success Stories (Series 2: Talent Management) | Ministry of Education Media Event Showcasing – International Talents (Gallery)      | 6-7 May 2014                   |
| 4.  | National      | Member of Research Committee | National Sports Council Member of the Research Committee  | National Sports Council   | June 2014                      |
| 5.  | National      | Task Force Member            | Member of the National Sports Association (NSA) Rating Program / Exercise Analysis  | Olympic Council of Malaysia   | April 2014                     |
| 6.  | University    | Co-Researcher                | Bronze Medal: An Anomaly-Based IDS Inspired by Human Body Defense System  | UPM Invention, Research and Innovation Exhibition                                   | 30 September – 01 October 2014 |
| 7.  | National      | Chairman of Committee        | High Performance Committee  | Malaysian Hockey Confederation  | 2012-2014                      |

| No. | Level         | Role                               | Award/ Recognition  | Organization Awarded                              | Date            |
|-----|---------------|------------------------------------|---|---|-----------------|
| 8.  | International | Member of Editorial Advisory Board | Technological Advancements and Applications in Mobile Ad-Hoc Networks: Research Trends Book   | IGI Global Publications                           | October 2010    |
| 9.  | University    | Main Researcher                    | Bronze Medal :<br>A Discrete Event Modeling and Simulation of Wave Division Multiplexing  | UPM Invention, Research and Innovation Exhibition | 20-22 July 2010 |
| 10. | University    | Main Researcher                    | Silver Medal:<br>Bottleneck Link Utilization with New Additive Increase Multiplicative Decrease Congestion Avoidance and Control Algorithm          | UPM Invention, Research and Innovation Exhibition | 20-22 July 2010 |
| 11. | University    | Co-Researcher                      | Silver Medal:<br>Authorized Control Frame Model to Prevent Virtual Carrier Sense DoS Attacks in IEEE802.11 Wireless Networks                        | UPM Invention, Research and Innovation Exhibition | 20-22 July 2010 |
| 12. | University    | Co-Researcher                      | Silver Medal:<br>A Backward Fault Recovery Mechanism in Preemptive Utility Accrual Real Time Scheduling Algorithm                                   | UPM Invention, Research and Innovation Exhibition | 20-22 July 2010 |
| 13. | University    | Main Researcher                    | Silver Medal :<br>Multi-class Bandwidth Reservation Scheme Based on Mobility Prediction for Handoff in Multimedia Wireless/Mobile Cellular Networks | UPM Invention, Research and Innovation Exhibition | 2009            |
| 14. | University    | Co-Researcher                      | Silver Medal :<br>Impact of Heuristic Approach to Statistic Bandwidth Allocation in ATM Switches  | UPM Invention, Research and Innovation Exhibition | 1-19 March 2005 |

| No. | Level      | Role            | Award/ Recognition   | Organization Awarded   | Date                  |
|-----|------------|-----------------|--|--|-----------------------|
| 15. | National   | Main Researcher | Gold Medal:<br>“Dynamic Rate Based Virtual Clock Scheduler for Output Buffered Switches” | National <i>Research and Development</i> Exhibition ( <i>IPTA R&amp;D Expo</i> ), Putra World Trade Centre – | 30/9/2005 – 2/10/2005 |
| 16. | University | Main Researcher | Gold Medal:<br>“Dynamic Rate Based Virtual Clock Scheduler for Output Buffered Switches” | UPM Invention, Research and Innovation Exhibition  | 2005                  |
| 17. | Faculty    | Co-Researcher   | Bronze Medal   | Faculty of Engineering Research, Innovation and Commercialization Exhibition                                 | 16-17/3/2006          |



## CURRICULUM VITAE

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UNIVERSITI PUTRA MALAYSIA**

**J. KEYNOTE ADDRESS AND  
SEMINAR PAPERS PRESENTED**

## J. KEYNOTE ADDRESS AND SEMINAR PAPERS PRESENTED

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| No. | Keynote / Speakers | Title  | Name of Seminar/ Conference   | Organizer   | Place                  | Date                 |
|-----|--------------------|--|---|---|------------------------|----------------------|
| 1.  | Keynote Speaker    | Research Performance Analysis and Strategy               | Research Strategies in Computer Science                               | Bharatiar University  | Coimbatore, India      | 18 February 2016     |
| 2.  | Speaker            | Mobility Managment for Internet of Things                | Internet of Things  | Avinashilingam Institute for Home Science and Higher Education for Women  | Coimbatore, India      | 19 February 2016     |
| 3.  | Keynote Speaker    | The Underlying Mechanisms of the Internet of Things      | International Conference in Recent Trends in Computing                | University of Madras  | Chennai, India         | 22 February 2016     |
| 4.  | Keynote Speaker    | The Internet of Things and Mobility Management           | International Conference on Recent Engineering Advances and Trends    | Pankajakasturi College of Engineering and Technology  | Trivandrum, India      | 17-19 March 2016     |
| 5.  | Speaker            | Impactful Research and Performance Analysis              | Professional Talk Series  | Infrastructure University   | Kuala Lumpur, Malaysia | 7 December 2015      |
| 6.  | Keynote Speaker    | Internet of Things and the Impact of Technology Transfer | The 5 <sup>th</sup> International Conference on Development Policy    | Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore, India & The Institute of Finance Management, Tanzania | Coimbatore, India      | 21-22 August 2014    |
| 7.  | Keynote Speaker    | Performance Modeling Strategies for Networks             | World Congress on Computing and Communication Technologies (WCCCT'13) | Department of Computer Science and IT, St. Joseph's College   | Trichy, India          | 27 Feb – 01 Mac 2014 |

| No. | Keynote / Speakers | Title   | Name of Seminar/ Conference   | Organizer   | Place              | Date           |
|-----|--------------------|---|---|---|--------------------|----------------|
| 8.  | Speaker            | Sports Leadership – The Impact of Technology                    | National Sports Institute –Universiti Putra Malaysia Sports Leadership Empowerment Series | National Sports Institute – University Putra Malaysia                     | Kuala Lumpur       | 11 Feb 2014    |
| 9.  | Keynote Speaker    | Communication Networks and the Impact of Paradigm Shifts        | 2 <sup>nd</sup> International Conference on Applied Computing                             | International Journal of Engineering Technology and Computer Applications | Kanyakumari, India | 31 Mac 2013    |
| 10. | Keynote Speaker    | Performance Analysis Strategies in Cyber Security               | International Seminar on Cyber Security   | Bharathiar University, India  | Coimbatore, India  | 11 Mac 2013    |
| 11. | Keynote Speaker    | Research in Computers : What?                                   | International Seminar on Research in Computing  | Bharathiar University, India  | Coimbatore, India  | 10 Feb 2012    |
| 12. | Guest Speaker      | High Performance Computing – The Impact on Performance Analysis | Novatte High Performance Computing Conference / CAD Workshop                              | Novatte (Singapore)   | Penang, Malaysia   | 5 Dec 2012     |
| 13. | Speaker            | Women and Sports  | National Sports Policy - Review   | Ministry of Youth and Sports  | Kuala Lumpur       | 12 June 2007   |
| 14. | Speaker            | Women Empowerment through Sports                                | ISCA World Congress   | International Sports and Culture Association                              | Kuala Lumpur       | 25-28 Oct 2007 |
| 15. | Speaker            | Sports Science  | 7 <sup>th</sup> Sports Science Conference   | University Science of Malaysia  | Kelantan           | 3-5 Sept 2007  |
| 16. | Guest Lecture      | Simulation and Modeling   | Universiti Tun Razak - Department Seminar   | Universiti Tun Razak  | Kuala Lumpur       | 2006           |

| No. | Keynote / Speakers | Title  | Name of Seminar/ Conference | Organizer                  | Place   | Date            |
|-----|--------------------|--|-----------------------------|----------------------------|---------|-----------------|
| 17. | Speaker            | ICT the Key in Striking a Balance between Sports and Academics | IFOSOC                      | National IT Council (NITC) | Malacca | 21-24 June 2003 |



## CURRICULUM VITAE

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FACULTY OF COMPUTER SCIENCE AND INFORMATION TECHNOLOGY  
UNIVERSITI PUTRA MALAYSIA**

**K. ACADEMIC LEADERSHIP,  
CONSULTATION  
AND CONTRIBUTION TO THE  
UNIVERSITY, SOCIETY AND NATION**







## **CURRICULUM VITAE**

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UNIVERSITI PUTRA MALAYSIA**

**K. ACADEMIC LEADERSHIP, CONSULTATION  
AND CONTRIBUTION TO THE UNIVERSITY, SOCIETY AND NATION**

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**K.1. ACADEMIC LEADERSHIP AND  
CONTRIBUTION TO THE UNIVERSITY**

### K.1. ACADEMIC LEADERSHIP AND CONTRIBUTION TO THE UNIVERSITY

| No. | Position                                       | Department/Faculty/Other Institution  | Year       | Duration / Other Details |
|-----|--|---|------------|--------------------------|
| 1.  | Director                                       | Sports Academy, University Putra Malaysia (Third Appointment)   | 2018- 2020 | 2 years                  |
| 2.  | Director                                       | Sports Academy, University Putra Malaysia (Second Appointment)  | 2016- 2018 | 3 years                  |
| 3.  | Director                                       | Sports Academy, University Putra Malaysia (First Appointment)   | 2013- 2016 | 3 years                  |
| 4.  | University Committee - Member                  | Research Committee  | 2014-2016  | 2 years                  |
| 5.  | University - Practical and Teaching Supervisor | Faculty of Education  | 2005       | 1 semester               |
| 6.  | University - Head Invigilation UPM-IPTS        | University Centre for External Program  | 2004       | 1 semester               |
| 7.  | University - Coordinator                       | University Centre for External Program (UPM – RISDA)  | 2003-2004  | 2 years                  |
| 8.  | Internal Examiner (Doctor of Philosophy)       | Sakher Ahmed Ahmed Hatem<br>A Scalable Reliable Multicast Transport Protocol with Advanced Buffer Management                                | 2015       |                          |
| 9.  | Internal Examiner (Doctor of Philosophy)       | Accurate WiFi Signal Strength Recovery Method using Chebyshev Wavelet Based Approximation for Indoor Positioning                            | 2015       |                          |
| 10. | Internal Examiner (Doctor of Philosophy)       | Ali Mohammed Monsoor Alsahag<br>Packet Scheduling and OFDMA Based Adaptive Resource Allocation Algorithms for QoS Support in WIMAX Networks | 2014       |                          |
| 11. | Internal Examiner (Doctor of Philosophy)       | AbdulRidha H. Abass<br>Performance Analysis and Improvement of Multipath Transfer   | 2014       |                          |

|     |   |  |      |  |
|-----|---|--|------|--|
|     |   | Over Asymmetric Paths Using CMT-SCTP Protocol  |      |  |
| 12. | Internal Examiner<br>(Masters of Science)   | Mostafa Kamil AbdulHusain<br>Improved Tree Routing (ImpTR)<br>Protocol for ZigBee Networks   | 2010 |  |
| 13. | Internal Examiner<br>(Doctor of Philosophy) | Mohammad Reza<br>Cross Layer Host Mobility Support for<br>All-IP Based Wireless Networks   | 2010 |  |
| 14. | Internal Examiner<br>(Doctor of Philosophy) | Rohaya Latip<br>Data Replication with 2D Mesh<br>Protocol in Grid Environment  | 2009 |  |
| 15. | Internal Examiner<br>(Doctor of Philosophy) | Amir Modarresi<br>A Social Network-Based Peer-to-Peer<br>Model for Resource Discovery  | 2009 |  |
| 16. | Internal Examiner<br>(Masters)              | An Adaptive Routing Algorithm:<br>Enhanced Confidence-Based Dual<br>Reinforcement Q Routing Algorithm in<br>Network Traffic (Yap Soon Teck –<br>GS09968) | 2004 |  |
| 17. | Internal Examiner<br>(Masters)              | An Integrated Firewall System Model<br>Using Distributed Multiclient-Server<br>Scheme (Hussein A. Taqi Al-Kezwini<br>(GS11415))                          | 2005 |  |
| 18. | Internal Examiner<br>(Masters)              | Efficient Sequential and Parallel<br>Routing Algorithms in Optical<br>Multistage Interconnection Network<br>(Monir Abdullah Abduh (GS13610))             | 2005 |  |
| 19. | Internal Examiner<br>(PhD)                  | Wavelet-Based Video Compression<br>(Rohmad Fakeh (GS000007))   | 2006 |  |
| 20. | Internal Examiner<br>(Masters)              | Geographical Approach for Route<br>Maintenance in Dynamic Source<br>Routing Protocol (Muhammad Farhan<br>Sjaugi (GS17200))                               | 2008 |  |
| 21. | Internal Examiner (PhD)                     | Atheer Abbas   | 2007 |  |
| 22. | Research Associate                          | Multimedia and Software Institute<br>( <i>Institut Multimedia dan Perisian</i> )   | 2003 |  |

|     |  |   |              |  |
|-----|--|---|--------------|--|
| 23. | Research Associate                         | Institute of Mathematical Research (INSPEM)                                 | 2004 onwards |  |
| 24. | National – Head                            | Malaysian University Sport Council (MASUM) – Hockey                         | 2004         |  |
| 25. | Institute - Head of Research Group Project | Wireless Research, INSPEM ( <i>Gagasan Sains Asas dan Matematik (SAM)</i> ) | 2006         |  |
| 26. | Faculty Committee – Member                 | Faculty Annual Report Committee   | 2004         |  |
| 27. | Faculty Committee Member                   | Industry – University Committee   | 2004         |  |
| 28. | Faculty Committee- Internal Auditor        | Faculty MS ISO 9001:2000  | 2005         |  |
| 29. | Department Committee Head                  | Publicity   | 2005         |  |
| 30. | Department Committee Head                  | Curriculum Committee  | 2008-2013    |  |
| 31. | Department Committee Head                  | Seminar Committee   | 2008-2012    |  |
| 32. | Department Committee Head                  | Research Committee  | 2011 – 2012  |  |
| 33. | Department Committee Member                | Department Seminar Committee  | 2011-2012    |  |
| 34. | Department Committee Member                | Copyright and Innovation Committee  | 2011-2012    |  |
| 35. | Department Committee Member                | Department Examination Evaluation Committee                                 | 2005         |  |
| 36. | Department Committee Member                | Department Research Committee   | 2008-2012    |  |
| 37. | Department Committee Member                | Curriculum Development (SKR3506 & SKR4306)                                  | 2005         |  |
| 38. | Department Course Synopsis Developer       | Dept. Communication Technology and Network (SKR3506)                        | 2005         |  |
| 39. | Department Course Synopsis                 | Dept. Communication Technology and  | 2005         |  |

|     |                                    |  |             |  |
|-----|------------------------------------|--|-------------|--|
|     | Developer                          | Network (SKR4306)  |             |  |
| 40. | Department Committee Member        | Department Examination Evaluation Committee  | 2009 -2010  |  |
| 41. | Chairman of Student Club           | Linux Club, Department of Communication Technology and Networks  | 2010        |  |
| 42. | Course Moderator                   | SKR4205 – Mobile and Wireless (Sem 2 (2013/2014))  | 2014        |  |
| 43. | Evaluator for Research Projects    | Dr Azizol Abdullah – A Scalable Scientific Data Grid Model and Services  | 2014        |  |
| 44. | Evaluator for Research Projects    | Assoc. Prof. Dr Zuriati Zulkarnain – An Effective Performance Evaluation System for Practical Quantum Key Distribution Protocols using Optisystem TM                   | 2014        |  |
| 45. | Evaluator for Research Projects    | Assoc. Prof. Dr Zuriati Zulkarnain – Reputation based on Secure Hierarchical Routing Protocol in Wireless Sensor Networks for Detection and Prevention Malicious Nodes | 2013        |  |
| 46. | Masters Program Development Member | Master of Computer Networks  | 2011-2014   |  |
| 47. | Secretary                          | Computer Network and Wireless Network Workshop   | 2010        |  |
| 48. | Faculty Committee - Member         | Faculty Restructuring  | 2012        |  |
| 49. | Department Course Moderator        | SKR4301 (Network Management)   | 2013        |  |
| 50. | Head of Faculty Research Group     | Mobile and Wireless Network Research Network   | 2010 - 2014 |  |



## CURRICULUM VITAE

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UNIVERSITI PUTRA MALAYSIA**

**K.2. ACADEMIC LEADERSHIP AND  
CONTRIBUTION TO THE SOCIETY  
AND NATION**

## K.2. ACADEMIC LEADERSHIP AND CONTRIBUTION TO THE SOCIETY AND NATION

| No. | Category                               | Details  | Year        |
|-----|--|--|-------------|
| 1.  | External Examiner                      | Wawasan Open University – School of Science and Technology   | 2017 - 2022 |
| 2.  | Board Member                           | National Olympic Academy / Olympic Council of Malaysia Executive Board   | 2015-2017   |
| 3.  | Deputy Chef De Mission                 | Malaysian Contingent for the SEA GAMES 2015  | 2014-2015   |
| 4.  | External Examiner (PhD)                | Karpagam University, Coimbatore, India<br>The Performance Analysis of Secure Multi-Party Electronic Payments in Mobile Computing using ECCMA Algorithm | 2015        |
| 5.  | External Examiner (PhD)                | Anna University, Chennai, India<br>Animal Communication Inspired Energy Efficient Routing Protocols for MANET  | 2015        |
| 6.  | External Examiner (PhD)                | Bharathiar University, Coimbatore, India<br>Design and Development of A New Algorithm for Customer Churn Prediction Through Class Imbalance            | 2014        |
| 7.  | Program External Examiner              | Wawasan Open University – Distributed Systems, System and Network Security   | 2014-2017   |
| 8.  | Advisor                                | Ministry of Youth and Sports (National Sports Council) - Integrated Sports Management System   | 2014        |
| 9.  | External Examiner (PhD)                | Mother Theresa Women's University<br>Multibiometric Based Key Authentication in Network Security   | 2014        |
| 10. | International Journal Editorial Member | International Journal of Advanced Networking Applications (ISSN : 0975-0282)   | 2014        |
| 11. | Board of Studies                       | Open University Malaysia (OUM) – Bachelor of Internet Computing  | 2013        |

|     |  |   |           |
|-----|--|---|-----------|
| 12. | Program External Examiner                | Open University Malaysia (OUM) – Bachelor of Computer Science with Honours  | 2013-2017 |
| 13. | Board Member                             | National Sports Institute - appointment by Khairy Jamaluddin, Minister  | 2013-2016 |
| 14. | External Examiner (PhD)                  | Multimedia University, Resource Allocation and Seamless Mobility in All Internet Protocol Converged Networks  | 2013      |
| 15. | External Examiner (PhD)                  | Bharathiar University, Coimbatore, India<br>Design and Development of Automatic Appendicitis Detection System using Sonographic Image Mining                  | 2013      |
| 16. | External Examiner (PhD)                  | Vels University, Chennai, India<br>Muthukumaravel - Development of Neural Networks For Concurrency<br>Control in Computer Aided Design Database               | 2012      |
| 17. | External Moderator (Masters)             | Universiti Tenaga Nasional<br>Anas M Mzahrn(Masters) – Towards the Internet of Things: Integration of RFID and Internet using TCP/IP Protocol Stack           | 2012      |
| 18. | Program External Examiner                | Master of Information Technology in Networking Computing , Open University Malaysia   | 2011-2015 |
| 19. | Board Member                             | National Sports Institute - appointment by YB Dato' Sri Ahmad Shabery Cheek, Minister   | 2011-2013 |
| 20. | Proceedings - Reviewer                   | Proceedings of the National Academy of Sciences   | 2012      |
| 21. | External Examiner (Doctor of Philosophy) | An Algorithmic Approach of Common Index Values for Information Extraction of RSI<br>(Department of Computer Science, Mother Teresa Women's University, India) | 2011      |



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|-----|---|---|------|
| 22. | External Examiner                                       | Open University Malaysia (OUM) Master of Information Technology in Networking Computing Program   | 2011 |
| 23. | External Examiner                                       | Open University Malaysia (OUM) Master in Computer Science Program   | 2011 |
| 24. | Asian Games Qualifiers – Organizing Secretary           | Malaysian Hockey Confederation  | 2007 |
| 25. | International Women and Sports Conference – Chairperson | WSFFM – Ministry of Youth and Sports  | 2007 |
| 26. | External Examiner (Masters)                             | A Reverse Engineering UML Modeling Toll (Sarajini Devi a/p Nagappan)  | 2005 |
| 27. | Conference Session Chair                                | 2 <sup>nd</sup> International Conference Research and Education in Mathematics (INCREM 2)   | 2005 |
| 28. | Chairperson Conference Session                          | International Conference on Mathematical Research and Education   | 2005 |
| 29. | Conference Paper Reviewer                               | Information Technology Colloquium (INTEC)   | 2004 |
| 30. | External Examiner (Masters)                             | Electronic Voting System on Wireless Application Protocol Platform: Case Study at University Tenaga Nasional (Cheong Hong Chai (WGA030084))                 | 2004 |
| 31. | External Examiner (Masters)                             | Salim FS Hayel (WGA020043)  | 2004 |
| 32. | Head of Evaluation Panel Ministry IGS Grant-            | Steering Committee for Ministry of Science, Technology and The Environment, Malaysia – Intelligent System for Pile Recording, Driving and Testing (INSPIRE) | 2004 |
| 33. | International Journal – Technical Committee Member      | International Arab Journal of Information Technology  | 2006 |
| 34. | Technical Committee (Head)                              | Ministry IGS Grant- Evaluation/ Intelligent System for Pile Recording, Driving and Testing  | 2003 |

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|-----|--|--|----------------|
| 35. | International Olympic Academy (IOA), Greece<br>Computer Workshop - Coordinator | International Olympic Academy            | 2001-2003      |
| 36. | Junior Asia Cup (Women's Hockey) – Regional World Cup Qualifiers               | Malaysian Hockey Confederation           | 2001 / 2008    |
| 37. | South East Asian Games (SEA) – Hockey – Organizing Secretary                   | OCM – SEA Games Federation               | 2001           |
| 38. | Commonwealth Games – Hockey IT Centre  | Commonwealth Games Federation / Malaysia | 1998           |
| 39. | 2 <sup>nd</sup> National Women Games – Chairperson , Kuala Lumpur              | WSFFM-Ministry of Youth and Sports       | 1-9 June 2007  |
| 40. | 1 <sup>st</sup> National Women Games – Deputy Chairperson                      | WSFFM-Ministry of Youth and Sports       | 10-17 Dec 2005 |



## CURRICULUM VITAE

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**PROFESSOR DR SHAMALA K SUBRAMANIAM**

**DEPARTMENT OF COMMUNICATION TECHNOLOGY AND NETWORKS  
FACULTY OF COMPUTER SCIENCE AND INFORMATION TECHNOLOGY  
UNIVERSITI PUTRA MALAYSIA**

### L. AWARDS AND RECOGNITION

## L. AWARDS AND RECOGNITION

| No. | Level         | Award/ Recognition   | Organization Awarded  | Year |
|-----|---------------|--|---|------|
| 1.  | National      | Royal Award – Pingat Ahli Setia Negeri Sembilan (ANS)  | Duli Yang Maha Mulia Tuanku Muhriz Ibni Alamrhum Tuanku Munawir                                 | 2013 |
| 2.  | International | Order of Merit   | Asian Hockey Federation   | 2019 |
| 3.  | International | President's Award  | Asian Hockey Federation   | 2014 |
| 4.  | University    | Talent Pool – Administration   | Universiti Putra Malaysia   | 2012 |
| 5.  | International | Women and Sports Diploma   | International Olympic Committee   | 2011 |
| 6.  | Faculty       | Faculty Special Award  | Faculty of Computer Science and Information Technology (FSKTM)                                  | 2011 |
| 7.  | Faculty       | Outstanding Lecturer Award   | Faculty of Computer Science and Information Technology (FSKTM)                                  | 2011 |
| 8.  | University    | Excellent Service Award  | Universiti Putra Malaysia   | 2011 |
| 9.  | National      | Women and Sports Award   | Olympic Council of Malaysia   | 2011 |
| 10. | University    | Outstanding Young Lecturer Award @ <i>Anugerah Pengajaran Putra (APP 2009) – Pengajar Muda</i> | Universiti Putra Malaysia   | 2010 |
| 11. | University    | Excellent Service Award  | Universiti Putra Malaysia   | 2009 |
| 12. | Faculty       | Best Lecturer (Department of Communication Technology and Networks)                            | Faculty of Computer Science and Information Technology (FSKTM) in conjunction with Lecturer Day | 2009 |
| 13. | University    | Excellent Service Award  | University Putra Malaysia   | 2008 |
| 14. | Faculty       | Excellent Lecturer Award   | Faculty of Computer Science and Information   | 2006 |

|     |               |   |  |      |
|-----|---------------|---|--|------|
|     |               |   | Technology (2006)  |      |
| 15. | University    | Excellent Service Award<br>( <i>Anugerah Perkhidmatan Cemerlang (APC)</i> ) | University Putra Malaysia  | 2004 |
| 16. | Faculty       | Best Lecturer (Personality) Award   | Faculty of Computer Science and Information Technology (FSKTM) in conjunction with Lecturer Day                                    | 2004 |
| 17. | Faculty       | Best Lecturer   | Faculty of Computer Science and Information Technology (FSKTM) in conjunction with Lecturer Day                                    | 2004 |
| 18. | International | IOC Diploma   | International Olympic Committee (IOC) tribute for remarkable contribution as a volunteer to the development of sports and Olympism | 2001 |



## **CURRICULUM VITAE**

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**PROFESSOR DR SHAMALA K SUBRAMANIAM**

**SPORTS ACADEMY  
UNIVERSITI PUTRA MALAYSIA  
&  
DEPARTMENT OF COMMUNICATION TECHNOLOGY AND NETWORKS  
FACULTY OF COMPUTER SCIENCE AND INFORMATION TECHNOLOGY  
UNIVERSITI PUTRA MALAYSIA**

**M. INVOLVEMENT IN PROFESSIONAL  
ASSOCIATION/ORGANIZATION/BODY**

#### M. INVOLVEMENT IN PROFESSIONAL ASSOCIATION/ORGANIZATION/BODY

| No. | Name of Association/Organization/Body                                     | Role<br>(President/Secretary/Committee<br>Member/Ordinary Member) |
|-----|---|---|
| 1.  | Institute of Electronic and Electrical Engineers (IEEE).                  | Member  |
| 2.  | Institute of Electronics, Information and Communication Engineers (IEICE) | Member  |
| 3.  | The International Arab Journal of Information Technology                  | Technical Committee Member  |
| 4.  | Malaysian Hockey Confederation  | Deputy President (2015-2018)                                      |
| 5.  | Malaysian Women's Hockey Association                                      | Honorary Secretary  |
| 6.  | Asian Hockey Federation Task Force  | Secretary   |
| 7.  | Women Sports and Fitness Foundation Malaysia                              | Executive Director  |
| 8.  | Olympic Council of Malaysia – IT Committee                                | Member  |
| 9.  | Asian Working Group on Women and Sports                                   | Secretary   |
| 10. | International Olympic Academy (Greece)                                    | Coordinator   |
| 11. | National Olympic Academy  | Board Member  |
| 12. | IEEE Internet of Things Journal   | Journal Reviewer  |



## **CURRICULUM VITAE**

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**PROFESSOR DR SHAMALA K SUBRAMANIAM**

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**FACULTY OF COMPUTER SCIENCE AND INFORMATION TECHNOLOGY**

**UNIVERSITI PUTRA MALAYSIA**

**N. CO-CURRICULUM INVOLVEMENT**



## N. CO-CURRICULUM INVOLVEMENT

|             |   |   |
|-------------|---|---|
| 2019-2023   | : | Deputy President, Malaysian Hockey Confederation  |
| 2015-2019   | : | Deputy President, Malaysian Hockey Confederation  |
| 2015        | : | Deputy Chef De Mission, Malaysian Contingent, SEA Games 2015  |
| 2015 - 2017 | : | International Hockey Federation (FIH) Appointments Committee  |
| 2019 - 2023 | : | Asian Hockey Federation (AHF) Executive Board Member  |
| 2011-2014   | : | Asian Hockey Federation (AHF) Executive Board Member  |
| 1999 – 2011 | : | Honorary Secretary, Malaysian Women's Hockey Association (MWHHA)  |
| 1999-2004   | : | International Olympic Academy Coordinator, Olympia, Greece. First and only Malaysian to be coordinator at the International Session for Youth and Sports in Olympia, Greece as to date. |
| 2005-2006   | : | 1 <sup>st</sup> Malaysian Women Member of International Hockey Federation, Development and Coaching Committee (DCC), Lausanne, Switzerland  |
| 2000-2006   | : | National Olympic Academy Board Member   |

During this tenure the Malaysian Hockey achieved the following:

- |                |   |   |
|----------------|---|---|
| 2000 - onwards | : | <ul style="list-style-type: none"> <li>– <b>World League Round 2 (Rio Olympic Qualifiers, New Delhi, India 2015)</b></li> <li>– <b>World League Round 1 (Rio Olympic Qualifiers, Singapore 2015)</b></li> <li>– <b>Asian Games, Incheon, Korea, 2014</b></li> <li>– <b>Commonwealth Games, Glasgow, Scotland 2014</b></li> <li>– <b>Bronze Medalist – Asian Champions Trophy, Kakamigahara, Japan, 2013</b></li> <li>– <b>Asian Under – 18 tournament</b></li> <li>– <b>South East Asia (SEA) Games, Myanmar (2013) – gold</b></li> <li>– <b>8<sup>th</sup> Asia Cup, Kuala Lumpur, Malaysia (2013)</b></li> <li>– <b>6<sup>th</sup> Junior Women Asia Cup, Bangkok, Thailand (2012)</b></li> <li>– <b>Best Association in Asia Award by the International Olympic Committee (IOC), given by President Juan Antonio Samaranch in Lausanne, Switzerland</b></li> <li>– <b>Women's World Cup Qualifiers, Santiago, Chile, 2010</b></li> <li>– <b>Beijing Olympic Qualifiers 2008, Victoria, Canada</b></li> <li>– <b>Asian Games, China 2010</b></li> <li>– <b>Commonwealth Games, New Delhi, 2010</b></li> <li>– <b>Asia Cup, Hong Kong 2007</b></li> <li>– <b>Women World Cup Qualifiers in Amiens, France</b></li> </ul> |
|----------------|---|---|

|             |   |  |
|-------------|---|--|
|             |   | <ul style="list-style-type: none"> <li>– <b>Gold Medal in Sea Games 2001 &amp; 2007</b></li> <li>– <b>Commonwealth Games – Manchester 2002</b></li> <li>– <b>Commonwealth Games – Melbourne 2006</b></li> <li>– <b>Commonwealth Games – New Delhi 2010</b></li> <li>– <b>Asian Games – Doha, Qatar 2006 (qualified and participated in the Asian Games after 20 years)</b></li> <li>– <b>Asian Games – Guangzhou, China 2010</b></li> <li>– <b>Senior Asia Cup – New Delhi, India 2004</b></li> <li>– <b>KT Cup, Internationals – Korea, 2006</b></li> <li>– <b>Team Manager Pool System Inaugural system development</b></li> <li>– <b>Indira Ghandhi Cup, New Delhi, India</b></li> <li>– <b>4 Nation Tournament, Singapore</b></li> <li>– <b>1st National Junior League - 2011</b></li> <li>– <b>1st Raja Noora Ashikin Cup – tournament open to clubs</b></li> <li>– <b>1st Indoor Hockey</b></li> <li>– <b>Senior Asia Cup – Hong Kong 2006</b></li> <li>– <b>1st Olympic Qualifiers, Canada 2008</b></li> <li>– <b>Champions Challenge 2 , Kazan, Russia 2009</b></li> <li>– <b>Champions Challenge 2, Vienna, Austria 2011</b></li> </ul> |
| 2001-2005   | : | Malaysian Women's Hockey Association Competition Committee Chairperson   |
| 1988 – 1992 | : | Represented the Malaysian Elite / Junior Squad (National Team): <ul style="list-style-type: none"> <li>▪ Indra Ghandhi Cup, New Delhi, India</li> <li>▪ Junior Asia Cup, Kuala Lumpur</li> <li>▪ Triangular Meet, Malaysia</li> <li>▪ TASA Games, Bangkok, Thailand</li> </ul>   |
| 1998        | : | Kuala Lumpur Commonwealth Games Information Technology Executive for Women's Hockey. Involved the development of the hockey software with the Spanish consultants for the Malaysian Women's Hockey Association and the SUKOM98.  |
| 1999        | : | Malaysian Olympic Council IT Committee Member. The Committee is the forefront  |
| 1999        | : | Malaysian Representative International Olympic Academy, Olympia, Greece  |
| 1988 – 1996 | : | Representative of the Negeri Sembilan State for the following competitions: <ul style="list-style-type: none"> <li>– Majlis Sukan Sekolah-Sekolah Malaysia</li> <li>– National Under-21</li> <li>– National Championship</li> <li>– International Club Competitions</li> <li>– National 7-Aside</li> </ul>   |

|                  |  |
|------------------|--|
| – Sukan Malaysia |  |
|                  | : Represented the Malaysia in the ASEAN Inter-University Games   |
|                  | : Guest Player for Malaysian Airlines for the World Inter-Airlines Games in Kuala Lumpur   |
| 2003-2007        | : Secretary, Asian Hockey Federation for Women Development. A special committee started by the Asian Hockey Federation for the purpose of developing women's hockey in Asia. |
| 2005             | : Secretary, High Performance Sport, Women Sports and Fitness Foundation   |
| 2005             | : Deputy Organizing Chairperson, 1 <sup>st</sup> National Women's Games:   |
|                  | – 3,000 athletes and officials   |
|                  | – 1 <sup>st</sup> event of its nature  |
|                  | – 9 sports   |
|                  | – 15 states and full participation   |
| 2005             | : Organizing Secretary of the Women Coaching Convention for 400 coaches at the Putra World Trade Centre  |
| 2006-present     | : Executive Director, Women Sports and Fitness Foundation Malaysia   |
| 2007             | : Chairperson of the 2 <sup>nd</sup> National Women Games  |
| 2005 - present   | : Secretary of the Women's Development Committee of the Asian Hockey Federation (AHF)  |
| 2006 - 2008      | : Director of the Women and Sports Division, National Sports Council   |