

# **CURRICULUM VITAE**

**Professor H.S. Al-Raweshidy**

**BEng(Hons) MSc PhD CEng FIEE SMIEEE, FRSA**

**Director of the Wireless Networks Communications Centre (WNCC)  
Director of Post Graduate studies (ECE)**

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<http://www.brunel.ac.uk/cedps/electronic-computer-engineering/research-activities/wncc>

**April 2019**

## 1. University Education

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PhD. Electronic Engineering, (1987-1991) Spread Spectrum for Multiplexing Networks.	University of Strathclyde, U.K.
PG. Diploma Electronic Engineering, (1986-1987) Optical Information Processing	Glasgow University, U.K.
MSc. Electronic Engineering, (With Distinction, 1978-1980) Ciphering and Deciphering Digital Data Transmission.	University of Technology, Baghdad, Iraq.
BEng. (1st Class Hons., 1974-1977)	University of Technology, Baghdad, Iraq.

## 2. Employment Summary

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**2006- Present : Professor of Communications**

**2003- 2006 : Research Reader in Communications**

**2000- 2003 : Senior Lecturer, University of Kent**  
Communication Systems Division  
Department of Electronics

**1998-2000 : Lecturer, University of Kent**  
Communication Systems Division  
Department of Electronics

**1993- 1998 : Senior Lecturer, Manchester Metropolitan University**  
Centre for Communication and Networks Research,  
Dept. of Electrical and Electronic Engineering

### **University of Oxford**

**1990-1993 : Postdoctoral Research Fellow,**  
Department of Engineering Science

The research work centred on the design and characterisation of a profilometer measurement of satellite dish using spread spectrum techniques.

### **British Telecom**

**Jun. 1992- : Senior Research Fellow,**  
**Sep. 1992 Access Networks Group**

Work focused on the design and analysis of an approach for secure system for advanced communication scenarios using CDMA.

**University of Strathclyde**

1987-1990 : **PhD. Research Student,**  
Department of Electrical and Electronics Engineering

The research centred on the applications of spread spectrum strategy in communication networks.

**Carl Zeiss, Oberkochen, Germany**

1984-1985 : **Research Engineer,**  
Communication Networks & computer Interface

**Perkin-Elmer, CA, USA**

Aug. 1983- : **Research Engineer,**  
Sep. 1983 Optoelectronic systems

Supervision of a joint project with Perkin-Elmer and Space and the Astronomy Research Centre for Optical Micro-Densitometer & HP-IB Interface.

**Space and Astronomy Research Centre, Baghdad**

1980-1985 : **Research Fellow,**  
Communication Networks and Computer Interface Research and Development Group.

Senior Research Engineer, responsible for developing communication systems for two telescopes including computer interfacing for astronomical data (in charge of seven Engineers).

### 3. Current Research Activities

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On the research front, my vision is to continue work on **beyond 5G** with **SDN**, **NFV** and **OF** to reduce end to end delay and minimise the power required for transmission by using cell densifications and **heterogeneous** networks. I believe **IoT** is where the future for communication research lies and it is imperative that we develop the implementation of a cognitive protocol with the use of Software Defined Networks, Virtualisation with **Cloudification** and **Big Data** for application in a variety of settings including **Healthcare**, **V2V** and **Robotic Industry** such as **M2M** and **D2D** using the two testbeds (built recently by my group) for further developments. These have led to the formation of the nucleus of a research team, which is currently investigating the role of these technologies in the telecommunication networks.

#### 4. Research Grants Received

ID	Sponsor	Grant Title	Project Value	Role	Date
1	AeroFlux	Mmwave (200-300 GHz) with Beam Forming and AI	£95,000	PI	2019-2022
2	Cobham	C-RAN for 5G	£18,000	PI	2017-2018
3	Ministry of Telecom/Iraq	Development of Iraqi Telecom	£1, 193,000	PI	2008-2013
4	British Council	Research and Teaching development	£93,000	PI	2010-2012
5	British Council	Research development	£60,000	PI	2010-2012
6	3 the Operator in UK	Spectral Sensing and Utilisation	£50,000	PI	2008-2008
7	EU/Frame 6	<u>My personal Adaptive Global NET</u> (MAGNET Beyond)/IP	£300,000	PI	2006-2008
8	EU/Frame 6	<u>My personal Adaptive Global NET</u> (MAGNET)/IP	£250,000	PI	2004-2006
9	European Project Intereg	Intereg III	£111,950	PI	2003-2005
10	European Project Intereg	Radio-Optical Systems Engineering in Transmanche Telecom” (ROSETTE)	£200,000	PI	2003-2004
11	SRIF	Network Emulator with 512 Nodes for Mobile IP	£100,000	PI	2002-2003
12	Intracom	All IP networks	£70,800	PI	2001-2002
13	Nortel	Ad-hoc formation of Bluetooth Piconet and IP allocation in PAN”	£100,800	PI	2001-2003
14	TEKMAR	UMTS Radio over Fibre Networks	£250,000	PI	2000-2002
15	EPSRC/Vodafone	HIPERLAN/2 and WCDMA Radio over Fibre Networks	£50,000	PI	2000-2002
16	IIR Telecom	UMTS In Building Coverage	£24,000	PI	2000-2002
17	EPSRC	D-Fibre Antenna for Personal Communication Systems	183,118	PI	2000-2002
18	EPSRC/Camber Systemic	Software Radio Networking	£45,000	PI	1999-2002
19	Yokohama University / Japan	RoF for Microcellular mobile Networks	£4,500	PI	Sept.1999
20	Chalmers University (Sweden)	RoF for Third Generation Mobile Communications	£3,000	PI	April 1999
21	UK-Dutch Scientific Research Council	RoF/WCDMA Transparency between Fixed and Mobile Networks	£5,400	PI	July-Sep.1997

22	BT	Power Control Aspect of Radio over Fibre Optical Network for Microcellular WCDMA Systems	£34,500	PI	1996-1999
23	REMEC/EPSRC	D- Fibre Antenna for Microcellular Mobile Communication Networks	£46,000	PI	1996-1999
24	AirTech/EPSRC	Performance of Radio over Fibre in Mobile Microcellular GSM	£45,000	PI	1995-1998
25	NORTEL-Northern Telecom	CDMA/TDMA for Telephony Passive	£27,500	PI	1994-1996
26	Nuffield Foundation	D-Fibre Distributed Network Using TDMA/CDMA Strategy	£4,000	PI	1993-1994
27	NORTEL-Northern Telecom	CDMA/TDMA for Telephony Passive Optical Networks”	£27,500	PI	1994-1996

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## 5. Supervision of PhD Students

P = Principle Supervisor, C = Co-supervisor

	Student Name	Thesis Title	Status	P/C
1.	T. Brown	CDMA/TDMA for Telephony Network	1994-1997	P
2.	H. Radhi	Frequency Hopping for Optical Fibre Networks	1994-1997	P
3.	A. Bahati	D-Fibre Antenna in mobile Networks	1997-2001	P
4.	M. Jahromi	ATM for Multicasting Using Passive Network	1998-2002	P
5.	S. Ampem	WCDMA Handover in RoF	1999-2003	P
6.	N. Khashjori	Software Radio Networks Using RoF	1999-2003	P
7.	M. Barry	Host Based Routing For IP Micromobility	2001-2005	P
8.	A. Savarajah	Adhoc Network with Mobile IP	2001-2004	P
9.	K. Hyder	HIPERLAN/2 and UMTS Handover using RoF	2001-2004	P
10.	N. Simeonidis	UWB for PAN Applications	2001- 2004	P
11.	K. Glabuitt	Intelligent Base Station Beyond 3G using RoF	2002-2005	P
12.	A. Milimarakis	Ad-Hoc Networks Best Routing	2003- 2006	P
13.	T. Shahid	New Metric for Ad-hoc Network	2004- 2006	P
14.	T Selman	PAN	2003- 2007	P
15.	Y. Qassey	Mobile IP/Ad-Hoc Networks	2004- 2008	P
16.	S. Chahduri	UWB for Ad-hoc Networks using RoF	2004- 2008	P
17.	M. Jewad	Security for Ad-Hoc Networks	2004- 2008	P
18.	F. Altabatabaee	Radio over fibre for Next Generation	2005- 2009	P
19.	A. Muhamod	Wireless Mesh Network	2005- 2009	P
20.	S. Khan	Cross Layer Optimisation	2005- 2009	P
21.	H. Kurdi	Personal Mobile Grid Connectivity	2006- 2010	P
22.	N. Saeed	Intelligent Wireless Networks	2006- 2011	P
23.	H. Nooraldeen	Cognitive Mesh Networks	2007- 2011	P
24.	J. Sadkat	Next Generation Internet	2007- 2011	P
25.	Z. Jarjess	Cognitive Cross Layer Optimisation	2007- 2011	P
26.	O. Raoof	Game Theory for Dynamic Spectrum Sharing	2007- 2010	P
27.	N. Radi	Spectrum Sensing for Cognitive Communications	2008- 2012	P
28.	D. Vlachos	Joint Blind Channel & Carrier Offset Estimation	2008- 2012	P
29.	A. Sabah	Cognitive Mobile Robot	2009- 2012	P
30.	I. Shah	Mesh Networks Optimisation	2009- 2012	P
31.	S. Ahmed	Spectrum Utilisation	2008- 2012	P
32.	S. Reza	Intelligent Radio over Fibre	2009- 2013	p
33.	A. Mesrubebe	Cognitive Mesh Network	2010- 2014	P
34.	S. Hamed	Mesh Networks	2010- 2014	P
35.	S. Hameed	Cognitive Mesh Networks	2010- 2014	P
36.	M. Taboo	Green Radio	2010- 2014	P
37.	R. Sabar	Dynamic Wave Allocations	2011- 2014	P
38.	B. Uwnchandee	Plastic Fibre	2011- 2014	P
39.	H. Al-Hmood	Cognitive Networks	2012- 2015	P
40.	M. Iqbal	Internet of Things	2011- 2015	P
41.	E. Abdulkareem	BGW Protocols	2011- 2016	P
42.	M. Alsadee	ICI for 5G	2014- 2016	P
43.	M. Al-Sherefee	Massive MIMO	2014- 2016	P
44.	S. El-Geder	SDN with Open Flow for Networking	2014- 2017	P

45.	B. Al-Kassim	IoT with SDN and Cloudification	2014- 2017	P
46.	N. Albody	Internet of Things	2014- 2017	P
47.	R. Hamamee	C-RAN with BBU Management	2014- 2017	P
48.	F. Goudarzi	VANET Optimisation	2014- 2017	P
49.	V. Selvan	Mesh Networks	2014- 2017	P
50.	I. Hubra	Massive MIMO	2014- 2017	P
51.	Ann. Sabeh	Smart SDN	2015-2018	P
52.	A. Kahlil	SDN for Big Data	2014- 2018	P
53.	P. Banik	5G using C-Ran	2014-2018	P
54.	O. Akif	Security for Big Data	2014- 2018	P
55.	R. Al-Debag	mm Wavefor 5G	2014- 2018	P
56.	W. Tawej	M2M for IoT	2014- 2018	P
57.	M.Khan	C-RAN for 5G using Load Balancing	2014- 2018	P
58.	A.Alata	SDN for IoT	2014- 2018	P
59.	W. Hamed	RoF for 5G	2014- 2018	P
60.	A. Ahmed	C-RAN	2014- 2018	P
61.	B. Khalaf	QoE for 5G	2014- 2018	P
62.	A. Kamaruddin	Network Virtualisation	2014- 2018	P
63.	E. Younes	SDN with NFV for Network Routers	2014- 2018	P
64.	T. Al-Janabee	IoT with SDN and Cloud Optimisation	2015- 2018	P
65.	F.Al-Torehee	IoT for D2D	2015- 2018	P
66.	A. Prasad	C-RAN with Markofchain	2016- Present	P
67.	A. Nyanteh	Cloud Hypervisor for IoT	2016- Present	P
68.	F. Yassen	Virtualised SDN for C-RAN	2016- Present	P
69.	S. Al-Majed	IoT for PV	2016- Present	P
70.	H. Kadhim	SDN for IoT	2016- Present	P
71.	Z. Fakhre	MIMO for mm wave	2016- Present	P
72.	A. Al-Mahdawi	Cloud with Hypervisor	2017- Present	P
73.	H. Aldaluo	Cloudification for IoT	2017- Present	P
74.	F. Al-wahab	MM Wave over Fibre	2017- Present	P
75.	E. Zanganah	MM Wave with MMIMO and Beam Forming using AI	2018-Present	P
76.	Husain Abdula	Security of IoT using AI	2019-Present	P

## 6. Teaching Experience

I have had considerable involvement in the planning and organisation of teaching at both undergraduate and postgraduate levels.

2010-Present	<b>Wireless Technology</b> (GSM, UMTS & LTE-A, Ad-hoc Networks)	Teaching Tutorial Syllabus Preparation	BEng EE3040
2009-Present	<b>Wireless Network Technologies</b> (UMTS & LTE-A, 5G, WLAN)	Teaching Tutorial Syllabus Preparation	MSc EE5515

20013-Present	<b>Research Method</b> (C-RAN, MIMO, Cloud, Big Data, 5G, IoT, SDN)	Teaching Tutorial Syllabus Preparation	MSc EE5611
2013-2014	<b>Digital Communication</b> (Transmission Line, Antenna, Propagation)	Teaching Tutorial	BEng EE2612
2004-2012	<b>Advanced Wireless Technology</b> (IP Mobility, Networks protocols)	Teaching Tutorial Syllabus Preparation	MSc EE5512
1998-2004	<b>Data Transmissions</b> (Transmission Line, Optical fibre)	Teaching Tutorial Syllabus Preparation	Third Year EEE
1998-2004	<b>Error Control Coding</b> (Viterbi Algorithm, Coding, Cyphering)	Teaching Tutorial Syllabus Preparation	Third Year EEE
1998-2004	<b>Digital Signals and Communications</b> (Filter types, DFT, FFT, pre-distortion)	Teaching Tutorial Syllabus Preparation	MSc EEE Broadband and Mobile Communication Networks
2000-2004	<b>Mobile Communications</b> (GSM and UMTS)	Teaching Tutorial Syllabus Preparation	MSc EEE Broadband and Mobile Communication Networks
2000-2004	<b>Advanced Communication Networks</b> (Ad-Hoc & IP Mobility)	Teaching Tutorial Syllabus Preparation	MSc EEE Broadband and Communication Networks

In 2001, two of my MSc modules were selected for e-learning in joint European MSc courses between France, UK and Belgium. On the teaching front, I want to further **refine my innovative teaching methods** and I have a strong motivation for **maintaining my very high feedback ratings (4.0, 4.2, 4.38 and 4.5 out of 5)** from the students; I am continuously working on incorporating student feedback for **improving learning and teaching** within my modules.



**I have established** the Electronic and Communications BEng/MEng course (running since 2008) which will be taught in **China** soon and established the Wireless Communication Systems MSc course. Currently, I am establishing an **IoT** course for BEng/MEng and **Future Networks** for MSc.

I have been attending different courses for staff development at Oxford and Manchester Universities and I have attended the staff development week at Brunel where I have been able to attend the following sessions and workshops:

- 1) CEDPS / College Education Symposium - 2018
- 2) Brunel Student Lifecycle - 2018
- 3) Learning Outcomes - 2017
- 4) Engineering Professor Council- Admission - 2017
- 5) Making effective presentations - 2015
- 6) Assessing and examining research students - 2014
- 7) Developing interpersonal skills - 2013
- 8) Interview skills - 2011
- 9) Interactive lectures and seminars - 2010

## 7. Leadership Experience

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2014- Present	Post Graduate Director
2015- Present	Chairman of the MC for MSc
2010- Present	Director for WNCC
2013- 2015	Chairman for Mechanical Engineering Department Exam Board
2004- 2006	MAGNET EU Project – Led the team of Brunel Researchers
2006- 2008	MAGNET Beyond EU Project – Led the team of Brunel Researchers
1998- 1999	II B examination officer/ Kent University

## 8. Management and Administration Experience

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2016-Present	Student Experience Committee
2016- Present	Athena Swan Committee
2010- Present	Departmental Management Committee
2010- Present	Industrial Advisory Panel (IAP)
2012- 2016	Departmental Promotion Panel
2009- 2011	University Senate
2005- 2010	School Board
2001- 2003	University Disciplinary Committee/ Kent University
2001- 2003	Departmental Research Committee / Kent University
2000- 2003	STMS Faculty Board/ Kent University

## 9. Invited Talks/ Presentation

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[2019] Invited Talk: 10<sup>th</sup> PwR Symposium, Bahrain

[2018] Invited Talk: IEEE 5G World Forum, Santa Clara, California 95054, USA

[2018] Invited paper: CSNDSP 11<sup>th</sup> IEEE/IET Inter. Symp, July 2018, Budapest, Hungary.  
 [2017] Workshop: IoT - Baghdad University  
 [2017] Workshop: Grid with Cloud - Helwan University - Cairo  
 [2016] Invited Talk: C-RAN with SDN and NVF - NetWorld 2020 - Bologna  
 [2016] Invited Talk: Self Organised Network (SON) - EU Commission - Bologna  
 [2015] Invited Talk: IoT with Cloudification and Big Data - AlNahrain University - Baghdad  
 [2015] Invited Plenary Keynote Talk: Beyond 5G - ICET 2015 - Pakistan  
 [2014] Invited Talk: 5G with Radio over Fibre - EU Commission - Brussel  
 [2012] Invited Plenary Keynote Talk: 5G with IoT - ICFCN'12 - Baghdad  
 [2010] Invited Talk: RoF for 5G at Photonic21 - Brussels  
 [2010] Invited Talk: Future Internet workshop at EU Commission workshop - Brussels  
 [2004] Panellist Session: The Challenges for 4G Technologies", WPMC 2004 - European Commission - Brussels  
 [2005] Chairing Panel session: Broad Band for All at WPMC 2005 - European Commission - Brussels  
 [2004] Workshop: Ad-Hoc networks Protocol - Socrates/OLA-Crete  
 [2004] Workshop: Mobile IP /Ad-hoc Networks - WPMC 2004 - Italy  
 [2003] Invited Talk: MIP/MANET – Nortel - Paris  
 [2001] Invited Talk: All-IP Mobile Networks – Kings College London – London  
 [2000-2004] Deliver short Courses for IIR to Highly skills engineering from Nokia, Ericson, Vodafone, Nortel, NEC  
 [2000] Invited Talk: RoF for Future Network - 3G2000 London  
 [2000] Tutorial: IP Mobility for third Generation - VTC'2000 Tokyo, Japan  
 [2000] Tutorial: Mobile IP for Next Generation - PROMS'2000 Krakow, Poland  
 [1999] One day - workshop: Radio over Fibre - VTC'99 - Amsterdam  
 [1999] Expertise Session: Future Networks - ECS'99 Slovakia  
 [1999] Invited presentation: RoF - Chalmers University  
 [1999] One day - workshop: Radio over Fibre - PIMRC'99 – Osaka - Japan  
 [1999] One day - workshop: Radio over Fibre ICEE'99 - Sharif University - Iran  
 [1999] One day - workshop: Wireless and Lightwave Interaction - European Microwave Conference -Amsterdam  
 [1997] One day - Mini Colloquium: Radio over Fibre for the Cellular Networks - Delft University-(IRCTR) - Holland

## **10. Membership**

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- 1- IEEE- Senior member (SIEEE)
- 2- IET- Fellow member (FIET)

## **11. Other Evidence of Standing**

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### **1- Expert advisory/consulting work**

- **Journal Referee**

IEE Proc."Communications"  
 IEE Electronics Letters  
 IEE Proc."Optoelectronics"  
 IEEE J Lightwave Technology  
 IEEE Transaction on Information Technology in Biomedicine  
 IEEE Transaction on IoT

IEEE Transaction on Wireless Communications  
 IEEE Transaction on VTC  
 IEEE Communication Magazine  
 IEEE J Selected Area of Communications  
 IEEE IoT  
 Wireless Communications and Mobile Computing  
 Optics Communications  
 International Journal of Wireless Personal Mobile Communications  
 European Transactions on Telecommunications

- **Conference Referee**

GLOBECOM, ICC, European Microwave, VTC, PIMRC, ECS, WPMC, IST,...

- **Conference Organisations and Chairs Sessions**

- 1- IEEE/IET Communication Networks Symposium, Manchester: 1995,1996, 1997-Chairing sessions
- 2- PIMRC'99 Japan - Chairing a session and a workshop
- 3- Vehicular Technology Conference (VTC'99), Amsterdam- International Advisory Committee
- 4- 2<sup>nd</sup> Electronic Circuits and Systems Conference, Slovakia, 1999- Technical Program Committee
- 5- GLOBECOM2000, Global Internet Symposium 2000, USA- Technical Program Committee
- 6- Radio Electronics 2000, Slovakia- Technical Program Committee
- 7- VTC'2001- Technical Program Committee
- 8- WPMC 20001 Denmark- International Advisory Committee
- 9- 3<sup>rd</sup> Electronic Circuits and Systems Conference, Slovakia, 2001- Technical Program Committee
- 10- GLOBECOM2002, Taiwan- Technical Program Committee
- 11- PIMRC 2001, USA- Technical Program Committee
- 12- ICC'2001, Finland- Technical Program Committee
- 13- CSNDSP 2002, UK- Technical Program Committee
- 14- WPMC 2002, USA- International Advisory Committee
- 15- 4th Electronic Circuits and Systems Conference, Slovakia, 2002- Technical Program Committee
- 16- WPMC 2004 Italy - Technical Program Committee
- 17- WPMC 2005 Denmark - Technical Program Committee
- 18- IST 2006 Greece - Technical Program Committee
- 19- WPMC 2007 India - Technical Program Committee and Chairing Session
- 20- PIMRIC 2010, Istanbul, Chairing Session
- 21- ICFCN 2012, General Chair and Founder
- 22- PIMRIC 2013 - Technical Program Committee
- 23- PIMRIC 2017 - Technical Program Committee
- 24- PIMRIC 2018 - Technical Program Committee
- 25- VTC 2018 - Technical Program Committee
- 26- ICSNC 2018 - Technical Program Committee
- 27- PIMRIC 2019 - Technical Program Committee

- **Journal's Editorial Board**

- 1- Wireless Personal Communications
- 2- Wireless Communications and Mobile Computing

- **Journal Guest Editor**

1. Guest Editor for International Journal “Wireless Personal Mobile Communications”
2. Guest Editor for International Journal “Transactions on Emerging Telecommunications Technologies”

**2- Awards:**

- UK-Dutch Scientific Research Council - 1997.
- The Nuffield Foundation for newly appointed Science and Engineering Lecturers - 1993.
- British Telecom: Senior Research Fellowship - 1992.

**3- External Examiner**

**External Examiner-MSc Courses:**

External Examiner for Kings College London, University of London **2011- 2016**

**External Examiner-BEng Courses:**

External Examiner for Bournemouth University **2001-2006**

**4- Consultancies:**

- . REMEC (USA)
- . Tekmar (Italy)
- . Antenna Products Limited (UK)
- . ANDREW (USA)
- . IIR

**5- Visiting Professor:**

1. Visiting Professor for ESIGELEC/ France,
2. Universiti teknologi MARA / Malaysia,
3. Yuan Ze University /Taiwan.

**6- Brunel’s Representative:**

1. WWRF
2. IEEE
3. Networld2020

**7- Member of Grant’s Reviewer:**

- 1- Member of EPSRC Peer Review College
- 2- Member of EPSRC Funds Panel
- 3- Referee for Netherland, Cyprus, Greece, Hong Kong Research Councils

- 4- Active expert collaborator to the Single European Electronic Market and SEEMSeed project
- 5- Member of SEEM Project Expert Panel
- 6- Reviewer expert for European Commission Projects

## 12. PhD External Examiner

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	University	Title of the thesis	Year
1	Delft University of Technology (Holland)	WCDMA Handover	<b>1997</b>
2	Swansea University	Frame Synchronisation in OFDM Modem using Artificial Neural Network	<b>2000</b>
3	Sussex University	Simulation of ATM Internetworking of CAN	<b>2000</b>
4	Valenciennes University (France)	WCDMA Power Control for Down Link	<b>2001</b>
5	Northumbria University	Power Control for UMTS	<b>2002</b>
6	Surrey University	Locating Services in Hybrid Ad Hoc Cellular Network	<b>2002</b>
7	Surrey University	New Coding for UMTS Cellular Network	<b>2003</b>
8	Sheffield University	Optical Fibre Loop	<b>2004</b>
9	Surrey University	Performance Analysis of Scalable Resource Allocation	<b>2004</b>
10	Northumbria University	Design of Patch Antenna	<b>2005</b>
11	Surrey University	New Protocol for Next Generation Networks	<b>2005</b>
12	Surrey University	Handover for Next Generation Networks	<b>2006</b>
13	Surrey University	Heterogonous air Interface Management	<b>2007</b>
14	Sussex University	Ad-hoc Geographical Protocol	<b>2007</b>
15	Hartsfield University	Improvement of the OFDMA	<b>2007</b>
16	University College London	Modelling the Transport for Complex Modulation in RoF	<b>2007</b>
17	Surrey University	Service Discovery for PAN	<b>2008</b>
18	Surrey University	HSPA on mobile satellite and interference cancellation receivers	<b>2008</b>
19	Kings College London	Mobile IP Networks	<b>2009</b>
20	Oxford University	Diversity Strategies for MIMO Communication Systems	<b>2010</b>
21	University of Leeds	Radio over Fibre for Multimode Fibre Applications	<b>2010</b>
22	Surrey University	Resource Management for next Generation Mobile Networks	<b>2010</b>
23	Surrey University	Security for PN	<b>2011</b>

24	Queen Mary University	Coverage Based Cooperative Radio Resource Allocation	2011
25	Kings College London	QoS for Future Networks	2011
26	Surrey University	QoE for LTE	2012
27	Newcastle University	Cognitive Networks	2012
28	Surrey University	Green Radio for Future Networks	2012
29	Surrey University	Self Organising Networks	2012
30	Kings College London	Cooperative Diversity for Distributed Multicarrier Relaying Systems	2013
31	Kings College London	Fuzzy Non-Dominance Approach for Network Routing	2015
32	Strathclyde University	Optical Fibre for High Data Network	2015
33	Sheffield Hallam University	Optical wireless Networks	2016
34	Cardiff University	MIMO	2017
35	Newcastle University	Optimisation of Ad-hoc protocol	2017
36	Salford University	Sensor networks for IoT	2017
37	Manchester University	Optimisation and analysis for polar code in communication system	2017
38	Surrey University	Energy-Aware MAC for Wireless Sensor Networks	2017
39	Cardiff University	High-Frequency, High Resolution of High Power RF-Power Amplifiers	2018
40	Queen Mary University	Numerical Assessment of Electromagnetic Waves Interactions with the Human Body from Generation of Wireless Devices	2018
41	Kings College London	Performance Enhancement and Evaluation of Coded MIMO-OFDM in Practical LTE System	2018
42	City University	Scheduling Heuristic for Reduced Complexity of Coordinated Beamforming in Large Multi-Carrier Heterogeneous Wireless Networks	2018
43	University of Leeds	Green IoT Energy Management	2018
44	University of Northampton	A novel Placement Algorithm for the Controller of the Virtual Networks in SD-WAN with Multiple VNs	2018
45	Buckingham University	Key-Dependant Random Permutations Based on Bipartite Graphs	2018

### 13. Publications

#### i. Book and Book Chapters Book

1- “Radio over Fibre Technologies for Mobile Communication Networks”.

**Publisher : Artech House**

Editors: Hamed Al-Raweshidy and Shozo Komaki, March 2002.

## **Chapters in Books:**

- 1- T. H. Sulaiman; H. Aldelou; **H. S. Al-Raweshidy**; “Signalling Model of Service Discovery in Heterogeneous Personal Networks”, Chapter in a book titled: ‘4G Mobile & Wireless Communications Technologies’, River Publishers, 2008.
- 2- H. Kurdi, M. Li, and **H. Al-Raweshidy**, “Taxonomy of grid systems,” book chapter, in the *Handbook of Research on P2P and Grid Systems for Service-Oriented Computing: Models, Methodologies and Applications*, N. Antonopoulos, G. Exarchakos, M. Li and A. Liotta, Eds., USA: Information Science Publishing, 2009.
- 3- N.H. Saeed, M.F. Abbod and **H.S. Al-Raweshidy** "I-MAN: An Intelligent MANET Routing System" Chapter in the Book “Pervasive Computing and Communications Design and Deployment: Technologies, Trends, and Applications”. Editor Apostolos Malatras, publisher IGI Global. (Book Chapter\_2010).
- 4- Dirik Dahlhaus and **H. S. Al-Raweshidy**, “My Personal Adaptive Global NET”, (MAGNET), PAN Optimisation Air Interfaces”, Chapter in Book, 2010.
- 5- S R Chaudhry and **H S Al-Raweshidy**, “Application-Controlled and Power-Efficient Personal Area Network Architecture for FMC”, Fixed Mobile Convergence Handbook, Oct 2010.
- 6- Omar Raoof and **H. S. Al-Raweshidy**, “Theory of Games: an Introduction”, chapter 1 of Game Theory book. ISBN: 978-953307-132-9, published online on the 27<sup>th</sup> of September 2010 at: <http://www.intechopen.com/books/game-theory/introduction-to-game-theory>. Cumulative downloads 4685 (updated on the 06/06/2012).
- 7- Omar Raoof and **H. S. Al-Raweshidy**, “Auction and Game-based Spectrum Sharing in Cognitive Radio Networks”, chapter 2 of Game Theory book. ISBN: 978-953307-132-9, published online on the 27<sup>th</sup> of September 2010 at: <http://www.intechopen.com/books/game-theory/introduction-to-game-theory>. Cumulative downloads 4403 (updated on the 06/06/2012).
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- 12- Alhumaima, R. S., J., Shireen and **Al-Raweshidy, H. S.**, "Evaluating the Energy Efficiency of Virtualised 5G Networks," Book ch, Id 46182, Nova Science Publishers, 2017.
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- 14-** Alhumaima, R. and **Al-Raweshidy, H. S.**, “On the Energy Efficiency of Virtual Machines’ Live Migration in Future Cloud Mobile Broadband Networks” FINAL BOOK TITLE & ISBN: "Broadband Communications Networks - Recent Advances and Lessons from Practice," 978-1-78923-743-6

**ii. White Papers:**

- 1- H. S. Al-Raweshidy, “5G”,** white paper, Networld2020 Technology Platform, Expert Working Group (EWG), 2014.
- 2- H. S. Al-Raweshidy, “ICT”,** white paper, Net!Works Technology Platform, Expert Working Group (EWG4), 2012.
- 3- H. S. Al-Raweshidy,”Optical Fibre Technologies and Radio over Fibre Strategic Research for Future Networks”,** White Paper, eMobility Technology Platform, EWG4/ Chairman, 2010.
- 4- H.S. Al-Raweshidy, “Super Broadband” ”,** white paper, Net!Works Technology Platform, Expert Working Group (EWG3), Nov 11, 2010.
- 5- H.S. Al-Raweshidy, “Wired and Wireless Technology”,** white paper, Net!Works Technology Platform, Expert Working Group (EWG4), Co-Editor, 2010.
- 6- H.S. Al-Raweshidy, “Cognitive Radio Systems”,** white paper, eMobility Technology Platform, Expert Working Group (EWG7), Nov 11, 2009.

**iii Patents:**

**UK**

1. Personal Identification Device (PID) & Context-Aware Routing Protocol  
Application No: 0425044.5  
Date of Filing: 12 November 04  
Applicant: Brunel University



### iii. Journal Publications

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8. [2018] A. Al Mhdawi and **H. S. Al-Raweshidy**, "SDQ-6WI: Software Defined Quadcopter-Six Wheeled IoT Sensor Architecture for Future Wind Turbine Placement", IEEE Access Journal, **Access-2018-14039**.
9. [2018] Abdollahi, Seyedreza; **Al-Raweshidy, Hamed safea**; Owens, Thomas ,”Pipelined photonic analog-to-digital converter” Journal of Optics, JOPT-105195.R1, (Accepted).
10. [2018] Raad S. Alhumaima, Riyadh Khalf Ahmed, and **H.S. Al-Raweshidy**,”Maximising the Energy Efficiency of Virtualised C-RAN Via Optimising the Number of Virtual Machines” IEEE Transactions on Green Communications and Networking, DOI:10.1109/TGCN. 2018.2859407 (Accepted)
11. [2018] H. Al-Hmood and **H. Al-Raweshidy**, “Unified approaches based effective capacity analysis over composite  $\alpha - \eta - \mu$ /gamma fading channels” Electronics Letters, March 2018, (Accepted).
12. [2018] Ali Khalil and **H.S. Al-Raweshidy**” Optimisation of computing and networking resources of a Hadoop cluster based on software defined network“ IEEE Access Journal, **DOI 10.1109/ACCESS2018.2876385**.
13. [2018] Alaa H. Radhi, R. Nilavalan, Yi Wang, **H. S. Al-Raweshidy**, Amira A. Eltokhy and Nur Ab Aziz, “Mutual coupling reduction with a wideband planar decoupling structure for UWB–MIMO antennas”, International Journal of Microwave and Wireless Technologies, July 2018 (Accepted).
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## **v. Conference papers**

1. Ali Khaleel and **H.S. Al-Raweshidy**, "Optimisation of Hadoop MapReduce Configuration parameter settings Using Genetic Algorithms", Computing Conference, 2018.
2. Ali Khaleel and **H.S. Al-Raweshidy**, "Effective Routing algorithm based on Software defined networking for big data applications in Data centre network", The 16th IEEE International Conference on Pervasive Intelligence and Computing, Greece, Athens, August 2018.
3. H. Al-Kadhim and **H. Al-Raweshidy**, "Energy Efficient Traffic in Cloud based IoT," International Conference on Industrial Internet of Things and Smart Manufacturing (IoTsm), Imperial College London, London, United Kingdom, 2018, ISBN: 978-1-912532-06-3.
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5. S. D. Al-Majidi, M. F. Abbod, and **H. S. Al-Raweshidy**, "A Modified P&O-MPPT based on Pythagorean Theorem and CV-MPPT for PV Systems" 2018 53rd International Universities Power Engineering Conference (UPEC), 2018.
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13. Alhumaima, R. S., **H. S. Al-Raweshidy**, "Optimising the BBU Pool Placement in Cloud Radio Access Networks based on Power Allocations," *SAI Computing Conference*, London, 2017.
14. Ismail H. and **H.S. Al-Raweshidy** "Uplink Performance of Cellular Massive MIMO with Fractional Power Control: Asymptotic Analysis" *IEEE EUROCON 2017, International Conference on Information and Communication Technologies*. IEEE, 2017.
15. Yaseen, Fouad A., Nahlah A. Al-Khalidi, and **Hamed S. Al-Raweshidy**. "Smart Virtual eNB (SVeNB) for 5G mobile communication.", *Second International Conference on Fog and Mobile Edge Computing (FMEC)*. IEEE, 2017.
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17. W. Al-Zubaedi and **H. Al-Raweshidy**, "A parameterized and optimized BBU pool virtualization power model for C-RAN architecture," in Smart Technologies, IEEE EUROCON 2017-17th International Conference on, 2017, pp. 38-43.
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