Place of Residence: Ajman, UAE
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Cell: +971 50 586 8123
Date of Birth: 6th October, 1980

RAO NAVEED BIN RAIS

PROFESSOR (ELECTRICAL AND COMPUTER ENGINEERING)

EMPLOYMENT			
	Aug 2016 – Date	**Ajman University**	UAE
	Current Designation: Professor (Electrical and Computer Engineering)		
	Jun 2013 – Aug 2016	**Capital University of Science & Technology**	Pakistan
	Designation: Associate Professor (Electrical Engineering Department)		
	Jul 2011 – Jun 2013	**COMSATS University, Islamabad**	Pakistan
	Designation: Assistant Professor (Electrical Engineering Department)		
	Oct 2007 – Feb 2011	**INRIA, Sophia Antipolis**	France
	Designation: Research Student, Planete Research Group		
	Mar 2007 – Sep 2007	**INRIA, Sophia Antipolis**	France
	Designation: Research Internee, Planete Research Group		
	Jan 2003 – Jun 2006	**C.A.R.E. Pvt. Ltd.**	Pakistan
	Designation: Senior Design Engineer		
	Jul 2002 – Jan 2003	**Communications Enabling Technologies** **Branch office of Quartics Inc., USA**	Pakistan
	Designation: Design Engineer		

EDUCATION			
	2007 – 2011	**INRIA/University of Nice-Sophia Antipolis**	France
	PhD (Computer Engineering) – Networks and Distributed Systems		
	2006 – 2007	**INRIA/University of Nice-Sophia Antipolis**	France
	Master Research, Information and Communication Sciences and Technologies (STIC) – Networks and Distributed Systems (RSD) – Score: **15.2/20.0 – 2nd Position**		
	1999 – 2002	**National University of Science & Technology (NUST)**	Pakistan
	Bachelor of Engineering in Computer Systems – Distinction (Honors) with CGPA **3.57/4.00**		

LEADERSHIP & SELECTED SERVICE TASKS

Current
- **Head** of Research – College of IT (2017–2019)
- **Chair** of College Research Committee (CRC) – (2017–2019)
- Member, AU Faculty Advisory Council (FAC), appointed by the AU Chancellor
- Member, AU Task Force for Exploring and Recommending Initiatives for Increasing Admissions for AU, appointed by the AU Chancellor (2020)
- Ajman University Academic Ambassador for Pakistan (2020 – Date)
- Member, Ajman University Quality Assurance Good Practice Committee (2020 – Date)
- Member, Department Curriculum Committee (2018–Date)
- Member, ABET Accreditation Committee (2019–Date)
- Coordinator, Computer Engineering Training and Internship
- Member, Students Training Committee (2020 – Date)
- Member, New Vision and Study Plans Committee for EE and CE Programs (2020 – Date)
- Member, ECE Recruitment Committee (2020 – Date)
- Member, Assessment and Continuous Improvement Committee (ACIC)
- Member, College Research Committee (CRC) – (2016–Date)
- Member, Ajman University Council of Research (2018 – 2019)
- Member, Ajman University Council of Graduate Studies and Research (2017–2018)
- Member, College Academic Council (2016–2019)
- Member, Research Conferences Committee (2017–18)

Past
- **Head**, Web Development, CUST (2013–16)

	- Departmental coordinator for **ABET** accreditation & OBE (**Outcome-Based Education**) under Washington Accord (2014–16) - **Head** of Course Files Audit to comply with **ABET** and Washington Accord (2014–16) - Member, Board of Studies, EE Department (2013–16) - Member, Curriculum Development Committee, EE Department (2011–13) - Programme Coordinator (EE): COMSATS-Lancaster University Dual Degree Programme (2011–13) - **Head** of Course Allocation, Course Offerings & Timetable (2012–13) - **Head**, Computer Architecture & Networks courses (2011–13) - Member, Campus Academic Regulatory Committee (CARC), (2012–13) - Member, Departmental Academic Review Committee (DARC) (2011–13) - Special Member, Board of Studies (BoS-EE) (2012–13) - Member, COMSATS-Lancaster University Joint Exam Board (2013) - Member, Campus Library Committee, CIIT (2011–13) - Member, Departmental Curriculum Development Committee (2012–13) - Member, Departmental Graduate Program Committee (2012–13) - Member, Undergraduate Projects Advisory Committee (2011 – 13)
RESEARCH SUPERVISION	- Supervised 3 PhD student at CUST, Islamabad - Co-supervised 1 PhD student at University of Glasgow, UK - Co-supervising 2 PhD students at CUST, Islamabad - Co-supervising 2 PhD students at University of Glasgow, UK - Supervised a number of MS research thesis
RESEARCH PROJECTS	- Blockchain enabled Mobility Predictions and Handover Skipping for Next Generation Wireless Networks (**at Ajman University, UAE in collaboration with University of Glasgow, UK – 20,000 AED**) - Energy Aware Mobile Communication and Mobility Predictions using Machine Learning Techniques for Heterogenous Future Cellular Networks (**at Ajman University, UAE in collaboration with University of Glasgow, UK – 35,000 AED**) - Artificial Intelligence Aided Radio Resource and Mobility Management for Future Cellular Networks (**at Ajman University, UAE in collaboration with University of Glasgow, UK – 36,000 AED**) - Network virtualization for supporting task offloading across hybrid cloud infrastructures (**at Ajman University, UAE in collaboration with Capital University of Science & Technology, Pakistan and Citi, USA – 31,000 AED**) - Framework for control and monitoring of Wireless Mesh Networks using Software-Defined Networking (**at CoReNeT, CUST, Pakistan in collaboration with ENS Lyon, France**) - Communication in Heterogeneous Networks with Episodic Connectivity, Equipes Associées Project (**at Planete Research Group, INRIA, Sophia Antipolis, France in collaboration with University of California at Santa Cruz (UCSC), USA**)

PROFESSIONAL & ACADEMIC ACHIEVEMENT	- Appointed as member of At-Large Advisory Committee (ALAC) representing Asia, Australia and Pacific Region (Oct 2021 – Date)
	- Selected as member of ICANN GNSO Standing Selection Committee (SSC) nominated by Non-Commercial Stakeholder Group (NCSG) (Dec 2020 – Date)
	- **"Faculty Excellence for Research" (Best Researcher)** award from Ajman University for the year 2018/19
	- Selected as Community Mentor representing Root Server Stability Advisory Committee (RSSAC) for ICANN Fellowship Program (2019-2021) for ICANN65 (**Marrakech**), ICANN66 (**Montreal**), ICANN67 (**Cancun**), ICANN68 (**Kuala Lumpur**), ICANN69 (**Hague**), ICANN70 (**Cancun**) and ICANN71 (**Hague**)
	- Selected as ISOC Fellow for 2019 ISOC ME Chapters Workshop (**Beirut, Lebanon**)
	- Selected as member of Second Security, Stability and Resilience Review Team for ICANN (Aug'18 – Date)
	- Selected as ICANN Fellow for the following ICANN meetings
	    ➢ ICANN62 (**Panama**), ICANN59 (**Johannesburg**), ICANN56 (**Helsinki**), ICANN54 (**Dublin**), ICANN 53 (**Buenos Aires**), ICANN52 (**Singapore**), ICANN50 (**London**)
	- Selected as ISOC Fellow for the following IETF meetings
	    ➢ IETF 100th (**Singapore**)
	    ➢ IETF 92nd (**Dallas**)
	- Selected as ICANN Community Mentor for ICANN 60th Meeting (**Abu Dhabi**)
	- Served as ICANN Fellowship Coordinator (Leader) for ICANN 55th Meeting (**Marrakech**)
	- Outstanding employee for the year 2011/12 and 2012/13 at CUI
	- Research Productivity Award for the year 2011 at CUI
	- PhD degree with Honors Distinction (Très Honorable)
	- HEC scholarship for MS and PhD studies in France from Government of Pakistan, 2006-2011
	- Scholarship from Ministry of Science and Technology (MoST), Pakistan for Bachelor of Engineering, 2000-2002

	- Sheikh Zayed's Scholarship from UAE Government for Bachelor of Engineering on the basis of performance at HSC level, 1999-2002 - Academic Performance Scholarships from National University of Sciences and Technology (NUST), Pakistan for six semesters of Bachelor of Engineering, 1999-2002

PROFESSIONAL TRAININGS	- Effectively Flipping your Course (**Mar-2021**)
	- Transitioning Effectively to Online Teaching (**Mar-2021**)
	- Cloud Application Developer by IBM Skills Academy (**May-2020**)
	- Student Assessment in Higher Education (**Apr-2020**)
	- Advanced Training on Moodle (**Apr/May-2017**)
	- "Train the trainers" course on DNS Security and Operations conducted by ICANN Middle East in Dubai (**Apr-2015**)
	- DNS Security (**Apr-2015**)
	- Teaching, learning and assessment at Lancaster University, UK (**Mar-2012**)
	   ➢ Teaching methodologies and aids
	   ➢ Curriculum design and development
	   ➢ Assessment schemes
	- Research Methodologies at Lancaster University, UK (**Feb-2013**)

WORKSHOPS / SEMINARS / TALKS	- Organized and delivered a two-day workshop on "Scientific Writing and Presentation Skills Development" at Ajman University, UAE (**Apr-2019**) - Invited talk on "Information-Centric Networking" at International conference in Computer Science and Allied Technologies (**Dec-2018**) - Co-trainer at 29th South Asian Network Operators Group (SANOG), Workshop on DNS Operations and Security (**Jan-2017**) - Delivered a Talk on "Secure Internet" and Panelist at IEEE PSCSC 2016 (**Apr-2016**) - Trainer & Faculty Member at 1st Pakistan School on Internet Governance (PKSIG) held at Islamabad, Pakistan (**Oct-2015**) - Organized a seminar on "Security, Stability and Resilience in the Internet" at CUST, Islamabad (**Apr-2015**) - Panelist in Workshop on "Internet Governance and Role of its Stakeholders" hosted by Ministry of Information Technology and Telecommunications (MoITT), Government of Pakistan (**Feb-2015**) - Invited talk on "Software Defined Networks" at National Software Engineering Conference (NSEC), Rawalpindi (**Dec-2014**) - Organized and delivered a seminar on "ICANN Functionality and DNS Security Awareness" at CUST (**Dec-2014**) - Organized and delivered a two-day workshop on "Scientific Writing and Presentation Skills Development" at CUST, Islamabad (**Oct-2014**)
RESEARCH PUBLICATIONS **Google Citations: 877 (h-Index: 12)** **Scopus Citations: 396 (h-Index: 9)** **ResearchGate Citations: 485** **Impact Factor: 37.6**	**Peer Reviewed International Journals** 1. *"Edge Intelligence in Private Mobile Networks for Next Generation Railway Systems"*, Frontiers in Communications and Networks, Oct 2021. 2. *"Soft-Mesh: A Robust Routing Architecture for Hybrid SDN and Wireless Mesh Networks"*, IEEE Access, Volume 9, pp 87715-87730, Jun 2021. 3. "*Energy Optimization in Ultra-dense Radio Access Networks via Traffic-aware Cell Switching*", IEEE Transactions on Green Communications and Networking, May 2021. 4. *"Detection of Malicious Consumer Interest Packet with Dynamic Threshold Values"*, PeerJ Computer Science Journal, 7:e435, Mar 2021. 5. *"On the Classification of Microsoft-Windows Ransomware Using Hardware Profile"*, PeerJ Computer Science Journal, 7:e361, Feb 2021. 6. "*Quality Management Systems and Processes for Effective Outcome Based Education (OBE): A Review*", MDPI Education Sciences Journal, Volume 11, Issue 2, Jan 2021. 7. *"Mobility Management-Based Autonomous Energy-Aware Framework Using Machine Learning Approach in Dense Mobile Networks"*, MDPI Signals, Nov 2020. 8. *"Modeling an Optimized Approach for Load balancing in Cloud"*, IEEE Access, Volume 8, pp :136769 – 136781, Sep 2020. 9. *"An Enhanced Firefly Algorithm Using Pattern Search for Solving Optimization Problems"*, IEEE Access, Volume 8, pp 148264 – 148288, Aug 2020. 10. *"SDNMesh: An SDN based Routing Architecture for Wireless Mesh Networks"*, IEEE Access, Volume 8, pp 136769 – 136781, Jul 2020. 11. *"Indoor Mobile Localization Using Wireless Sensor Networks (WSNs)"*, Springer Advances in Intelligent Systems and Computing, Web, Artificial Intelligence and Network Applications, Vol 1150, pp 341-351, Apr 2020. 12. *"SDNHybridMesh: A Hybrid Routing, Architecture for SDN Based Wireless, Mesh Networks"*, Springer Advances in Intelligent Systems and Computing, Web, Artificial Intelligence and Network Applications, Vol 1150, pp 366-375, Apr 2020.

13. *"Study and Analysis of Mobility, Security and Caching Issues in CCN"*, International Journal of Electrical and Computer Engineering (IJECE), Vol. 10, Issue 2, pages 1438-1453, Apr 2020.
14. "*Data Offloading in IoT Environments: Modeling, Analysis, and Verification*", Springer EURASIP Journal of Wireless Communication and Networking, 2019(53), 2019.
15. "*Optimal Content Caching in Content-Centric Networks*", Wiley/Hindawi Wireless Communications and Mobile Computing Journal, Vol 2019, Article ID: 6373960, 2019.
16. *"A Dynamic Caching Strategy for CCN-based MANETs"*, Elsevier Computer Networks journal, Vol. 142, Pages 93-107, 2018.
17. "*A Resource Efficient Multi-dimensional Cache Management Strategy in Content Centric Networks*", Journal of Computational and Theoretical Nanoscience, Vol. 15, Issue 4, pages 1137-1152, 2018.
18. *"Benchmarking and Modeling of Routing Protocols for Delay Tolerant Networks"*, Springer Wireless Personal Communications (WPC), Vol. 94 No. 3, pp 859-888, 2017.
19. "*Smartphone-Controlled Localization and Management of Home Appliances using IoT*", ASM Science Journal Special Issue 2017. No. 1, pp 64-68, 2017.
20. "*Cooperation in Opportunistic Networks: An Overlay Approach for Destination-Dependent Utility-Based Schemes*", Springer Arabian Journal of Science and Engineering, Vol. 42 No. 2, pp 467-482, 2017.
21. *"Resource Aware Routing in Heterogeneous Opportunistic Networks"*, Hindawi International Journal of Distributed Sensor Networks, vol. 2016, Article ID 2907980, pp 1-18, 2016.
22. "*Message Delivery in Heterogeneous Networks prone to Episodic Connectivity*", ACM/Springer Wireless Networks (WINET) Journal, Vol. 17 No. 8, pp 1775-1794, November 2011.
23. *"Efficient Content Dissemination in Heterogeneous Networks Prone to Episodic Connectivity"*, ACM Computer Communications Review (CCR), Vol. 41, No. 4, pp 480-481, (also appeared in Proceedings of ACM SIGCOMM, Toronto, Canada), August 2011.
24. *"Routing for Disruption Tolerant Networks: Taxonomy & Design*", ACM/Springer Wireless Networks (WINET) Journal, Vol. 16 No. 8, pp 2349-2370, November 2010.

Peer-Reviewed International Conferences and Workshops

1. *"Employing Machine Learning for Predicting Transportation Modes under the COVID-19 Pandemic: A Mobility-Trends Analysis"*, in Proc. of 2021 International Conference on UK-China Emerging Technologies (UCET), China, 2021.
2. *"Developing Fine-grained Performance Indicators for Assessment of Computer Engineering using Outcome-based Education"*, in Proc. of 9th IEEE International Conference on Information and Education Technologies, Japan, 2021.
3. *"Load-Aware Cell Switching in Ultra-Dense Networks: An Artificial Neural Networks Approach"*, in Proc. of 2020 International Conference on UK-China Emerging Technologies (UCET), UK, 2020.
4. *"Outcome-Based (Engineering) Education (OBE): International Accreditation Practices"*, in Proc. of the 127th American Society for Engineering Education (ASEE) Annual Conference and Exposition, Montreal, Canada, 2020.
5. *"Reinforcement Learning driven Energy Efficient Mobile Communication and Applications"*, in Proc. of 19th IEEE International Symposium on Signal Processing and Information Technology (ISSPIT), Ajman, UAE, 2019.
6. "*An Insight of Mobile Data Offloading: A Comparative Study*", in Proc. of IEEE International Conference on Ubiquitous and Future Networks (ICUFN), Zagreb, Croatia, 2019.
7. "*Miracle: An Agile Colocation Platform for Enabling XaaS Cloud Architecture*", in Proc. of IEEE/ACM CCGrid Conference, Cyprus, 2019.
8. "*Run-time Detection of Prime+Probe Side-Channel Attack on AES Encryption Algorithm*", in Proc. of IEEE Global Information Infrastructure and Networking Symposium (GIIS 2018), Thessaloniki, Greece, 2018.
9. "*Fog-Supported Internet of Things (IoTs) Architecture for Remote Patient Monitoring Systems using Wireless Body Area Sensor Networks*", in Proc. of IEEE Cyber Science & Technology, Workshop on Healthcare with Intelligent Sensing, System, and Data, Pages 462-466, Athens, Greece, 2018.
10. "*Multi-Attribute Caching: Towards Efficient Cache Management in Content-Centric Networks*", in Proc. of IEEE Consumer Communications & Networking (CCNC) Conference, Las Vegas, USA, 2016.
11. *"A Multi-Attribute Routing Protocol for Opportunistic Network Environments"*, in Proc. of IEEE ICCCN Wireless Mesh and Ad-hoc Networks (WiMAN) Workshop, Shanghai, China, 2014.
12. *"Taxonomy of Information-Centric Networking: Categorization and Challenges"*, in Proc. of the 23rd Wireless Optical and Communication Conference (WOCC), Newark, NJ, USA, 2014.
13. *"Analysis of TCP under Wireless Circumstances – A Performance Evaluation"*, in Proc. of IEEE International Conference on Frontiers of Information Technology (FIT), December, Islamabad 2012.
14. "*Naming for Heterogeneous Networks Prone to Episodic Connectivity*", in Proc. of IEEE Wireless Communications and Networking Conference (WCNC), Mexico, March 2011.
15. "*Towards Truly Heterogeneous Internets: Bridging Infrastructure-based and Infrastructure-less Networks*", in Proc. of 3rd IEEE/ACM COMSNETS Conference, India, January 2011.
16. "*Message Delivery in Heterogeneous Disruption-prone Networks*", in ACM Mobicom, Chicago, USA, October 2010.

17. "*Message Delivery in Heterogeneous Disruption-prone Networks*", demo presentation in ACM second Wireless S3 workshop, Chicago, USA, October 2010.
18. "*Coping with Episodic Connectivity in Heterogeneous Networks*", in Proc. of 11th ACM International Conference on Modeling, Analysis and Simulation of Wireless and Mobile Systems (MSWiM), Canada, October 2008.
19. "*Adaptive Thresholding Technique for Document Image Analysis*", in Proc. of IEEE International Multi-topic Conference proceedings (INMIC), Lahore, 2004.
20. "*A New Algorithm of Stereo Matching using Epipolar Geometry*", in Proc. of IEEE International Multi-topic Conference (INMIC), Islamabad, 2003.

Books & Book Chapters

1. *"An Insight into 5G Networks with Fog Computing"*, Book Chapter, Fog Computing: Theory and Practice Book, Wiley-IEEE Computer Society Press, 2020.
2. *"Caching, Security, and Mobility in CCN"*, Book Chapter, Fog Computing: Theory and Practice Book, Wiley-IEEE Computer Society Press, 2020.
3. *"Delay-Tolerant Networking: Routing Taxonomy and Design"*, in Encyclopedia of Wireless and Mobile Communications, Second Edition, Volume I, Taylor and Francis Publishers, ISBN 978-1-4665095-6-6, December 2013.
4. *"Message Delivery for Intermittently-Connected Heterogeneous Networks"*, published by: LAP Publications, pages: 236, Standard: 978-3-8473-1512-4, 2011.
5. "*DTN Routing: Taxonomy & Design*", in Delay Tolerant Networks: Protocols and Applications (2nd Chapter), CRC Press, ISBN: 978-1-4398110-8-5, November, 2011.

Research Reports/Preprints

1. *"Energy Optimization in Ultra-Dense Radio Access Networks via Traffic-Aware Cell Switching"*, arXiv:2007.04133, July 2020.
2. *"Context-Aware Wireless Connectivity and Processing Unit Optimization for IoT Networks"*, arXiv:2005.00407, April 2020.
3. "*MeDeHa – Efficient Messae Delivery in Heterogeneous Networks with Intermittent Connectivity*", INRIA Technical Report No. 7227, inria-00464085, March 2010.

Local Conferences

1. "*Coping with Episodic Connectivity in Heterogeneous Networks*", Poster presentation at Rescom, France, June 2008.

INTERNET DRAFTS/RFCS	1. M.S. Akbar, **R.N.B. Rais**, A.R. Sangi, M. Zhang, C. Perkins, *"Transmission of IPv6 Packets over Wireless Body Area Networks (WBANs)"*, Internet Draft, draft-sajjad-6lo-wban-01, Published: November 2017 (https://tools.ietf.org/id/draft-sajjad-6lo-wban-02.html)
TECHNICAL PUBLICATIONS	1. **R.N.B.Rais** et. al., "*RSSAC Advisory on Measurements of the Root Server System*", RSSAC002v3, Published Online https://www.icann.org/en/system/files/files/rssac-002-measurements-root-06jun16-en.pdf, 2016. 2. **R.N.B.Rais** et. al., "*MEAC Strategy Working Group Charter*", Version 1, Published Online, https://community.icann.org/download/attachments/59642230/MEAC%20Strategy%20Working%20Group%20Charter.pdf?version=1&modificationDate=1463826771000&api=v2, 2016.
JOURNAL / CONFERENCE REVIEWS	**Journal Reviews** ACM/Springer Wireless Networks (WINE), Elsevier Computer Communications, Elsevier Ad-hoc Networks, KSII Transactions on Internet and Information Systems, Wiley International Journal of Communication Systems, IEEE Transactions on Network and Service Management (TNSM), IEEE Transactions on Vehicular Technology (TVT), IEEE Access, IEEE Journal on Special Areas in Communication (JSAC), IEEE Communication Surveys and Tutorials, Wiley Wireless Communications and Mobile Computing (WCMC), **Conference TPC** IEEE ICWUS Conference 2009, IEEE WCNC 2011, ACM CHANTS Workshop 2011, IEEE VTC-Spring 2013, IEEE FIT 2012 & 2017-19, IEEE ICET 2013-15, IEEE ICUFN 2019, IEEE ISSPIT 2019
GRADUATE & UNDERGRADUATE COURSES TEACHING	▪ **Graduate courses** ➢ Networking Programming ➢ Network Security ➢ Network Architecture Design ➢ Mobile Networking ➢ Communication Networks: Architectures and Protocols ▪ **Undergraduate courses** ➢ Fund. of Data Comm & Networking ➢ Advanced Computer Networks ➢ Network Operating Systems ➢ Enterprise Security ➢ Computer Communications and Networks ➢ Electronics-I

	➢ Electronics-II
	➢ Computer Organization and Architecture
	➢ Microprocessor & Computer Architecture
	➢ Computer Programming
	➢ Programming for Engineers
	➢ Introduction to Programming with MATLAB
	➢ Wireless Networks and Mobile System Architecture
	➢ Object-Oriented Programming and Data Structures

➢ Instrumentation and Measurements
➢ Digital Logic Design
➢ Microprocessor Systems
➢ Data Structures and Algorithms
➢ Engineering Ethics
➢ Engineering Analysis

LANGUAGE COURSES

- Formation Professionelle (French)
  Intermediate Level (250 Hours)
  Pole Formation CCI, Colmar, France
  Jul 2006 – Sep 2006

- Cours de Français (FLE)
  Beginners Level (330 Hours)
  Alliance Francaise d'Islamabad
  Distinction: Tres Bien (82%)
  Jan 2006 – May 2006

MEMBERSHIPS

- Member, Pakistan Engineering Council (PEC) – COMP/2271
- Member, Internet Society (ISOC)
- Member, Root Server Stability Advisory Committee (RSSAC) Caucus, ICANN
- Membership Coordinator, Non-Commercial Users Constituency (NCUC), ICANN
- Member, Pak-France Alumni Network (PFAN)
- Ex. President, Internet Society, Islamabad Chapter
- Ex Board Member, Pakistan Networks Operator Group (PK-NOG)

LANGUAGES

- Urdu (Native)
- English (Fluent)
- French (Good)