JUNAID AHMED ZUBAIRI
Professor and Chair
Computer and Information Sciences Department
College of Liberal Arts and Sciences,
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ACADEMIC EXPERIENCE

1999 - *   *Department Chair since 3/2019*,
                Professor (9/2011 - */*),
                Associate Professor (1/2004–8/2011)
                Assistant Professor (1/1999-1/2004)
                Date of joining SUNY: January 1999
                Department of Computer and Information Sciences, SUNY at Fredonia.

1996-99   Associate Professor, ECE Department,
                Intl' Islamic University Malaysia (IIUM) Malaysia.

1994-96   Associate Professor and Incharge, Computer Engineering Department
                Sir Syed University of Engineering and Technology (SSUET), Pakistan.

1993-94   Head, Computer Science Department,
                Aligarh Institute of Technology (AIT), Pakistan.

EDUCATION

Syracuse University, USA	Ph. D.	(Computer Engineering)	1991
Syracuse University, USA	M.S.	(Computer Engineering)	1987
NED University, Pakistan	B.E.	(Electrical Engineering)	1983

SHORT TERM AND VISITING POSITIONS

Professor of Computer Engineering, School of Engineering (2014-15) (on leave from Fredonia)
American University of Ras al Khaimah, UAE

Visiting Professor, ECE Department, Faculty of Engineering (2010)
University of Illinois at Chicago (UIC), (Funded by UIC and SUNY at Fredonia)

Associate Professor (2006-08) (On Leave from Fredonia)
Computer Science Department, Faculty of Engineering and Computer Science
University of Ha'il, Saudi Arabia

Visiting Professor, Computer Science Department,   (2005)
Faculty of Information and Communication Technology
IIUM Malaysia. (Funded by IIUM)

Visiting Professor, Center for Information Technology Arid Agri University Pakistan (2002)
(Funded by HEC Pakistan)

Visiting Professor, ECE Department, Faculty of Engineering (2000)
 IIUM, Malaysia 2000. (Funded by IIUM)

HONORS AND AWARDS

- **Kasling Memorial Lecture Award for Scholarly and Creative Excellence,** State University of New York at Fredonia 2019
- **State University of New York Chancellor's Award** for Excellence in Scholarship and Creative Activities, 2018
- **High Achievement Award,** WNYMuslims, conferred by New York State Senator Tim Kennedy, 2017
- **Presidential Award for Exceptional Academic Service**, American University of Ras al Khaimah, UAE 2015
- **Merit Scholarship** for Graduate Studies, Ministry of Science and Technology (1986-90), Government of Pakistan, (Tuition plus living expenses for FOUR YEARS for higher studies leading to PhD)

RESEARCH GRANTS AND AWARDS

- National Science Foundation Innovation-CORPS grant (**NSF-iCorps) $50,000** Summer 2020, awarded.

- RSCA Summer research grant SUNY RF, 2020, Rescue planning for building disasters, **$2,760** awarded

- RSCA Summer research grant SUNY RF, 2019, Flight Data Tracker prototype development **$4,000**, awarded

- National Science Foundation Grant NSF 05-506 awarded '04-'10 Co-PI **$400,000.**

- Research grant IRPA (Intensification of Research in Priority Areas), Government of Malaysia '99, Co-PI **$62,000**

- SUNY Sustainability fund; December 2012 Project participant Co-PI **$13K**

- AURAK Seed Research Grant ENGR 001-15, awarded January 2015 Loading Balancing for Emergencies and Disasters, **AED 10,000 ($2,740)**

- SUNY Fredonia Seed Research Grant awarded summer 2014, Hospital Queuing System for Emergencies and Disasters **$2500**

- SUNY UUP Individual Development Award 2016 **$1,000**

- SUNY Fredonia Learning Support Grant Summer 2014 **$1,000**

- SUNY Fredonia Summer Seed Research Grant 2010 Sensor network testbed development **$2,500**

- SUNY UUP Individual Development Award '10, **$1,000**

- SUNY CIT participation award CIT2010, value **$1,000**.

- Xilinx University Program award 2009 (programming boards plus software) value **$4400**.

- SUNY UUP Individual Development Award '06,

- Altera University Program award 2005 and 2002 (programming boards & software) value **$2895**.

- SUNY Scholarly Incentive Award 2005, **$1,000**

- SUNY Faculty Foundation Fellowship Award 2004, **$1,100**

- SUNY UUP Individual Development Award 2003

- SUNY Scholarly Incentive Award 2001**, $600**

- Research grant IIUM, Malaysia (Image Processing) '97 as PI, **RM 6,000**

- Lab, Equipment grant Biomechanics Research Lab Sir Syed University Pakistan awarded in '95 as PI.

REVIEWS, CONFERENCES AND PROFESSIONAL SERVICES

- I have played **leading roles in over 53 conferences**. I am actively involved in the organization of sessions, symposia and conferences in my areas of interest in leading positions. I have been technical program chair, publication chair, session chair, keynote speaker, invited speaker and symposium chair in numerous conferences co-sponsored by IEEE, ACM and various academic institutions. I was a keynote speaker in ICONICS 2016 and an invited speaker in FIT 2016 and HONET 2017 conferences. I am serving as publication chair for HONET2020 and senior TPC member for HPCS2020. FIT, HONET and HPCS proceedings are included in the IEEE Digital Library.

- I have served as a **reviewer for 21 professional journals** including IEEE Transactions on Networking, IEEE Transactions on Biomedical Imaging, IEEE Transactions on Communications, IEEE Communications Magazine, IEEE Communications Letters, IEEE Aerospace & Electronics Systems Magazine, IEEE Wireless Communications Magazine, Elsevier's Journal of Computer Networks (COMNET), Elsevier's Computers and Electrical Engineering Journal, International Journal of Electronics, Kuwait Journal of Engineering Research and over 55 international conferences including CTS, HONET, FIT, CNS, ICCC, VTC etc.

Partial List of R&D Projects Supervised

S.No.	Name of Student, Status and Year	Project Description
1	John Drew Merino 2020	Integrating Flight Data Tracker with RTI DDS (Data Distribution Service) Connext bus using publish and subscribe software model
2	John Drew Merino 2020	RSCA Building Disaster Rescue Planning with Localization and Clustering of Victims
3	Inderdeep Bajwa 2019	RSCA Flight Data Tracker Prototype Development
4	Anatolie Biliciler 2014	Software Framework for Patient Data Management
5	Erdem Erdogan and Shaun Reich 2014	WiMAX and 4G LTE Traffic Scheduling
6	Zhoujun Fu, Sean 2012	Developing Finite State Machine model of Flight Data Tracker and decoupling its communication module from data handling module
7	A. Ozgun 2011	Monitoring for SLA (Service Level Agreement) Compliance in Customer Edge Network
8	Salman Zafar (M.S. 2011)	Adaptive Traffic Engineering
9	Nabeel El-Bahbooh (M.S. 2003)	Management of Traffic Requests and LSPs for MPLS Domain
10	Omer Mahmoud (M.S. 2002)	Effects on QoS With Context Transfer During Mobile Handoff
11	Awad El-Shaikh (M.S. 2002)	Suitability of VBR Handling Schemes in Diffserv Domains
12	Chris Gabriele 2002	An Evaluation of TELIC (Traffic Engineering W. Link Coloring)
13	Jason Beuckman 2001	Implementation of TELIC, A General Traffic Engineering Tool
14	Joel Greutman 2001	Evaluating Centralized Course Server for a Campus Network
15	James Clement 2001	Implementation of Call Tracking Database in ResNet
16	Mike Zuber 2000	Campus Network Study with OPNET

Invited Presentations

S.No.	Date	Title
1	October 2018	IoT Smart City Applications (HONET'2018)
2	October 2017	IoT Applications and Security Issues (HONET'2017)
3	December 2016	IoT (Internet of Things) and its Applications (FIT'2016)
4	December 2015	Load Balancing and its Applications (HONET'2015)
5	December 2015	Development of Smart Disaster Management System (FIT'2015)
6	December 2014	Patient Management using RTS based Queueing and Migration in Emergencies and Disasters (FIT'2014)
7	December 2013	WiMAX Scheduling Considerations for Competing Traffic (FIT'2013)
8	December 2012	Security Information and Event Management with OSSIM (Joint with Dr. Athar Mahboob at FIT'2012 conference)
9	December 2011	Sensor Network Programming and Applications (IEEE INMIC'2011)
10	December 2010	Implementation of Sensor Network Testbed with Medical Data Sensing Application Development (FIT'2010)
11	December 2008	Voice over MPLS Techniques, Keynote presentation IEEE INMIC Dec'2008
12	December 2007	VoIP Enabling Technologies and Deployment Opportunities, Keynote, FIT Dec'2007
13	July 2005	Networking for the Future and E-Commerce Security Seminars, Kulliyyah of Information and Communication Technology, IIUM, Kuala Lumpur, Malaysia
14	Dec 2004	Traffic Engineering Fault Management for Optical Networks in NSF Sponsored HONET'04 (High Speed Optical Networks Workshop), Islamabad, Pakistan
15	Dec 2004	Issues in Network Bandwidth Management and Traffic Control in NSF Sponsored FIT'04 (Frontiers of Information Technology Workshop), Islamabad, Pakistan

16	Dec 2003	Networking for Tomorrow in NSF Sponsored FIT'03 (Frontiers of Information Technology Workshop), Islamabad, Pakistan
17	Feb 2003	Traffic Engineering Algorithms for Network Domains at Natural and Social Studies and Professional Studies Faculty Research Expo in SUNY at Fredonia
18	Aug 2002	An Automated Traffic Engineering Algorithm for MPLS-Diffserv Domains at Institute of Business Administration, University of Karachi, Pakistan
19	Aug 2002	Seminar on Current Issues and Technologies for the Internet: Part A: Early Scenario and ATM, CIT (Center for Information Technology, Arid Agriculture University, Pakistan) and SSUET (Sir Syed University of Engineering and Technology, Pakistan)
20	Aug 2002	Seminar on Current Issues and Technologies for the Internet: Part B: Quality of Service on the Internet: New Protocols and Traffic Engineering, CIT and SSUET
21	Aug 2002	Seminar on Current Issues and Technologies for the Internet: Part C: Access Denied...Encryption and Security, CIT and SSUET
22	Aug 2002	Seminar on Current Issues and Technologies for the Internet: Part D: Multimedia Communications, CIT and SSUET

Conference Organization

S.No.	Date	Activity
1	Dec 2020	**Finance Co-Chair** HONET 2020
2	Dec 2020	International TPC **Senior member** HPCS 2020
3	Oct 2019	**Finance Co-Chair** HONET 2019
4	July 2019	International TPC **Senior member** HPCS 2019
5	Oct 2018	Conference **Co-Chair** HONET 2018
6	July 2018	International TPC **Senior member** HPCS 2018
7	Oct 2017	TPC **Co-Chair** HONET 2017
8	July 2017	**Symposia, Tracks, Workshops & Special Sessions Co-Chair** HPCS 2017
9	Oct 2016	**TPC Co-Chair** HONET 2016
10	July 2016	International TPC **Senior member** HPCS 2016
11	Dec 2015	**TPC Co-Chair** HONET 2015
12	Dec 2014	**Workshops/Tutorials Co-Chair** HONET 2014
13	Dec 2012	**Publication co-chair** HONET 2012

14	May 2011	**Workshop co-chair** International Workshop on Collaboration and Sensors Networks and Systems (CSNS 2011) under CTS 2011, **Publication chair** CTS 2011
15	December 2010	**Technical Program Co-Chair**, Frontiers of Information Technology (FIT) 2010 (ACM Digital Library)
16	December 2009	**Publication chair**, Secretariat Coordinator and Session Chair High Performance Optical Networks and Enabling Technologies Symposium (HONET 2009) (IEEE Digital Library); **Technical co-chair** FIT 2009; **Publication chair** and session co-chair CTS 2009
17	December 2008	**Technical Program Co-Chair** High Performance Optical Networks and Enabling Technologies Symposium (HONET 2008) (IEEE Digital Library) **Publication chair** and **Special Session Chair** Collaboration Technologies Symposium (CTS 2008) (IEEE Digital Library) **Keynote Speaker** IEEE INMIC 2008
18	December 2007	**Keynote speaker** FIT 2007
19	December 2006	**Co-Chair** High Performance Optical Networks and Enabling Technologies (HONET 2006) and **Co-Chair** Frontiers of Information Technologies 2006
20	Dec 2005	**Program Co-Chair** FIT'05 Frontiers of Information Technology, to be held in Dec '05
21	May 2004	**Track Chair** Track on "Traffic Engineering With Protocols and Devices" in **ATS'2004 (ASTC'04)** Applied Telecommunications Symposium, Advanced Simulation Technologies Conference, May 2004, Washington DC, USA
22	Oct 2003	**Co-Chair** Symposium on IP Mobility, **IEEE VTC'2003** Conference
23	Mar 2003	**Track Chair** Track on "Traffic Engineering With Protocols and Devices" in **ATS'2003 (ASTC'03)** Applied Telecommunications Symposium, Advanced Simulation Technologies Conference, March 2003, Orlando, USA
24	Sep 2002	**Session Chair** Special Session on "Traffic Engineering for the Next Generation Networks", PDCS'2002 conference in September 2002, Louisville, USA

25	Jul 2001	**Session Chair** Invited session on "Bandwidth and Service Quality Management in the Internet", SCI'2001 conference in July 2001, Orlando, USA
26	Nov 2000	**Session Chair** Special session on "Interworking of Diffserv, RSVP and MPLS for achieving QoS in the Internet", PDCS'2000 conference in November 2000, Las Vegas, USA
27	Misc.	**TPC** (Technical Program Committee) **Member** and/or **Reviewer** for HONET 2004 to 2020, HPCS 2015, HPCS 2014, ASTC'2004, IEEE VTC'2003, HP&LSC'2003, IEEE GLOBECOM'2003, ASTC'2003,IEEE IPPS Symposium 1990, CCSCNE'2000, ASTC'2001, SCI'2001, ANSS'2002, PDCS'2002

- Invited reviewer for MS (Information Systems) program of Al-Ghurair University, Dubai, UAE. Completed the review in Feb 2011. Invited reviewer for A.S. Computer Science program of Jamestown Community College. Completed the review in 2011 and again in 2017.
- Reviewed the scholarship record of several faculty member in Universities in UAE, Pakistan and Malaysia.
- Supervised over **100 term projects** by undergraduate and graduate students. **Supervised Master's thesis research for 4 students, examined 13 PhD dissertations and 11 Master's theses**. Some of the supervisory and thesis examiner work is listed below:
  - ✓ M. Al-Sharrah **(MS 2019)** Deep Learning Based Predictive Algorithms in the Management of Enterprise Data Center Assets
  - ✓ R. Buksh **(PhD 2019)** Towards Smart Cities: A Move for Efficient Energy Management From a Home to Cities Exploiting Clouds
  - ✓ T. Tahir **(PhD 2019)** Software Measurement Programs: Evaluations and Solutions
  - ✓ Naeem Ahmed **(PhD 2019)** Enterprise Resource Planning (ERP) Implementation in Small and Medium Sized Enterprises (SMEs) in Pakistan
  - ✓ I. Ahmed **(PhD 2018)** Secure Provenance for Distributed Environment
  - ✓ Zaigham M.A. **(PhD 2017)** Multilingual Source Code Analysis for Recovery of J2EE Environment
  - ✓ A. Aziz **(PhD 2017)** Estimation of post calamity losses for mitigating its impact in Pakistan
  - ✓ S. A. AlRoomi **(MS 2016)** Exploring New Features for Effective Palm and Wrist Vein Recognition
  - ✓ T. Maqsood **(PhD 2016)** Energy-Efficient Task and Data Scheduling for Large-Scale Computing Systems
  - ✓ M. AlShafei **(MS2016)** Implementation of Harmony Search on Embedded Platform
  - ✓ S. Ansari **(PhD 2016)** Generating and Validating Growth and Obesity Roadmap for Pakistani Children
  - ✓ A. Hamouda **(MS 2016)** Odd/Even Invert Coding for Phase Change Memory with Thermal Crosstalk
  - ✓ M. Sarwar **(PhD 2016)** Effective Decision Making for the Presence of Scoliosis
  - ✓ S. Jabbar **(PhD 2015)** Energy Efficient Routing for Multi Layer Design of Wireless Sensor Networks

✔ M. Wasim **(PhD 2015)** A Security System Employing Edge Based Rasterstereography
✔ D. Dias **(MS 2015)** Enhanced Chunk Regulation Algorithm for Superior QoS in Heterogeneous P2P VoD
✔ H. Al-Mutairi **(MS 2014)** A Hybrid Mapping Algorithm for Reconfigurable Nano-Architectures
✔ R. Alawnah **(MS 2013)** Green and Fair Workload Distribution in Geographically Distributed Datacenters
✔ M. Zafar **(MS 2010)** Making TELIC Compliant to Russian Dolls Model of Bandwidth Allocation
✔ Arshad Aziz **(PhD 2008)** Efficient Implementation of AES for the Resource Constrained Reconfigurable Platforms
✔ A. Mahboob **(PhD 2005)** Efficient Hardware and Software Implementation of Elliptic Curve Cryptography
✔ N. El-Bahbooh **(MS 2003)** Management of Traffic Requests and LSPs for MPLS Domain
✔ O. Mahmoud **(MS 2002)** Effects on QoS With Context Transfer During Mobile Handoff
✔ A. El-Shaikh **(MS 2002)** Suitability of VBR Handling Schemes in Diffserv Domains

Editorial and Advisory Boards, Memberships and Honors

● **Senior Member IEEE** (Institute of Electrical and Electronic Engineers, USA) including **IEEE Communications Society**. IEEE senior membership requires significant performance over a period of five years per IEEE website (URL: https://www.ieee.org/membership/senior/)

● **Member**, IEEE Computer Society Technical Committee on Computer Communications

● **Member**, IEEE Computer Society Technical Committee on the Internet

● **Member**, IEEE Computer Society Technical Committee on Pattern Analysis and Machine Intelligence

● **Member Advisory Board** DiscoverSTEM https://www.discoverstem.info/about_us

● **Member Editorial Board** TEKNOLOGIX journal**,**

● **Member International Advisory Board** Indus Journal of Management & Social Sciences (IJMSS)**,**

● **Member Advisory Board** Asian Journal of Engineering, Sciences and Technology (AJEST),

● **Member Advisory Board** ICOM'01 (First International Conference on Mechatronics) Malaysia Feb2001

● **Member** of **Alpha Sigma Chapter** of **PHI BETA DELTA**, Honor Society for International Scholars in USA.

● **Member PEC** (Pakistan Engineering Council),

● Listed in **Marquis who is who in America** since 2008.

UNIVERSITY AND DEPARTMENT SERVICES

- I managed the curriculum development, faculty scheduling and coordination, laboratory facilities design and future planning as Head of Computer Science Department in Aligarh Institute of Technology Pakistan and In-charge Computer Engineering in Sir Syed University of Engineering and Technology Pakistan from 1993 to 1996.

- I was appointed as a member of Rector's IT advisory board in Intl' Islamic University Malaysia in 1998.

- I worked as chair of Computing Systems and Facilities committee and managed one system administrator and 10 lab proctors in SUNY Fredonia from 2002 to 2006.

- I served as the chair of department's assessment committee and administrative committee and as ABET coordinator in SUNY Fredonia. I was selected by the Dean to receive ABET accreditation training.

- At the University level, I served as the department senator. I was a member of the graduate and research committee and programs and awards committee of the senate.

- During my sabbatical leave in AURAK, I served as chair of several school-wide committees in school of Engineering. I led the ABET committee in developing ABET application including self study reports for two programs (ECE and CE) and both programs received ABET accreditation in the first attempt. The President of AURAK conferred upon me the *Presidential award for exceptional academic service* in 2015.

- As the chair of the computer and information sciences department, I am planning for the new home of the department in the renovated Houghton Hall with 5 new labs. I have established strong links with the industry and I am working to launch a graduate level Advanced Certificate for Cyber Security. I have led this project for the last one year and currently it is submitted to SUNY central for final approval.

WORKSHOPS AND EXHIBITS ATTENDED OR GIVEN

- Participated in SUNY NYCRIN (New York City Regional Innovation Node) NSF I-Corps (Innovation Corps) Short Course, March 22 to April 6th, 2019

- Participated in Lumen Learning - Open Educational Resources Workshop: Jan 22, 2016, Buffalo State College, Buffalo NY

- Completed OnCourse training basic and advanced Nov'2015 for offering online courses

- Participated in 2015 PKAL Upstate New York Regional Network Fall Meeting on "How Learning Strategies and Spaces can Help Engage Student Learning in STEM", at Science Center, Fredonia Sept 26. 2015

- Completed 7 professional development hours by participation in ABET Assessment Workshop December 2014, Dubai UAE

- Attended Angel Training workshop in 2010 for offering online courses.

- Attended "Dee Fink Course Design Workshop" on May 19th, 2005, SUNY at Fredonia.

- Attended SLN Faculty Training Workshops 1,2,3 and 4 ending on April 12th, 2005.

- Directed and conducted the "Digital Design Workshop" under the Center for Information Technology, Arid Agri University Pakistan Dec 2004

- Participated in SUPERCOMM 2004, Chicago June 20-24, (Obtained special IEC (Intl' Engineering Consortium) Academia Grant approx. $3,000 to attend).

- Organized a mini symposium in NSSPS Faculty Research Expo held on Feb11, 2004 in SUNY Fredonia, titled "Efficient Techniques for Multimedia Communications".

- Attended FPGA Design Training in Altera facilities San Jose California in June 2004 to design the Computer Architecture labs.

- Attended "Getting Started with Blackboard for Instructors" workshop on May 22, 2003 in SUNY Fredonia campus.

- Participated in "Introduction to Turnitin" workshop on May 22, 2003.

- Participated in "Introduction to library Databases" workshop on May 19th, 2003

- Exhibited research on networking in Faculty Research Exposition of NSSPS held on November 28, 2001 at SUNY Fredonia campus.

- Attended CIT'2001 (Conference on Instructional Technologies) at SUNY Geneseo from May 29th to May 30th, 2001. This conference supported my participation with a scholarship.

- Participated in Case Studies in Science Workshop at the University at Buffalo from May 21 to May 25, 2001. In this workshop, I designed and taught a case titled "Can Software be trusted" together with Dr. David Luginbuhl of University of Western Carolina.

- Participated in "Facilitating Student Dialogue and Peer-Assisted Learning Strategies" workshop on May 17, 2001 in Alumni House, SUNY at Fredonia.

- Exhibited research in Faculty Research Exposition of NSSPS held on October 25th, 2000 on SUNY Fredonia campus

- WebCT and Dreamweaver workshops , May 2000, SUNY at Fredonia

- Participated in NSF sponsored "Ethics in Computing" Workshop, University of South Florida, Tampa Aug 8-13th, 1999.

RESEARCH IMPACT STATEMENT

During the last several years, I have built strong international research links and reputation in my field of interest. I have worked in network performance evaluation, network protocol design and network applications and published extensively in international conferences, journals and books. I have developed a number of algorithms for automated network traffic engineering, medical data aggregation and transmission and flight data transmission and integration. My work for flight data tracker has earned the US non-provisional patent recognizing it as a useful invention. (see http://patentsgazette.uspto.gov/week31/OG/html/1441-1/US09718557-20170801.html. The granting of patent to FDT was widely covered in newspapers, TV news and aviation magazines. I obtained an RSCA award to develop the prototype of the flight data tracker in 2019. The prototype was successfully completed and tested. Later, my team was awarded the prestigious NSF i-Corps grant to continue the work on the flight data tracker. The other teams who won the award included teams from MIT, Stanford, Cornell, Northwestern and other top ranked universities. I was invited by IGI Global Publishers to be the chief editor for a book on cyber security. This book was published in 2011 and it was selected as the textbook for a graduate level course in George Mason University. Recognition of my expertise is evident from the number of conferences and symposia that have invited me in leading roles such as technical program committee chair, keynote speaker, International chair, session chair and publication chair. I am a founding member of the team that started FIT (Frontiers of Information Technology) Conference that has been held each year since 2003. This conference was started as NSF sponsored workshop. FIT is now part of the ACM Digital Library. I am in the core team of HONET (High Performance Optical Networks and Enabling Technologies) conference which was started as NSF sponsored event and later progressed to become an international conference. Its proceedings are included in IEEE Digital Library. I have played a key role in organizing both FIT and HONET. I have contributed to the success of CTS (Collaboration Technologies Symposium) which has progressed to become a full conference. I have been the publication chair of IEEE CTS for several years. I won a seed grant for research in disaster management in AURAK, UAE in 2014. I worked with the Associate Dean to develop a mathematical model for patient dispatch for mass disasters and location aware processing of disaster zone hospitals and our results have been published in prestigious Springer journal of personal wireless communications and Elsevier ICT Express Journal. I worked with NUST faculty on applications of IoT in smart cities and we published an invited article in IEEE Electrification Magazine. Currently, I am working on an RSCA grant funded project for rescue path computation in disasters involving multistory buildings. My publications have been referenced widely by researchers and authors in conferences, journals, patents and books.

LIST OF PUBLICATIONS

PATENT AND IP

- US Patent Office, Non-Provisional Patent filed Jan'14, granted Aug'17 https://patents.google.com/patent/US9718557B2/en "Flight Data Tracker", J. Zubairi

- Technology Transfer Office, SUNY Research Foundation; New Technology Disclosure, "Emergency Medical Data Processing and Transmission over Cellular Network", J. Zubairi, Filed September 2010

BOOKS

- J. Zubairi and A. Mahboob, Editors **"Cyber Security Standards, Practices and Industrial Applications: Systems and Methodologies"** 2011, ISBN13: 9781609608514, ISBN10: 1609608518, IGI Global Publishers.

- J. Zubairi, Editor and I. Tasadduq Co-Editor **"Applications of Modern High Performance Networks"**, ebook Bentham Science Publishers, (www.bentham.org) 2009 eISBN: 978-1-60805-077-2.

BOOK CHAPTERS

- A. Malik, A. Mahboob, A. Khan, J. Zubairi **"Application of Cyber Security in Emerging C4ISR Systems"** chapter in process, IGI Global Handbook on Cyber Security Standards, Practices and Industrial Applications: Systems and Methodologies" 2011, ISBN13: 9781609608514, ISBN10: 1609608518, IGI Global Publishers.

- J. Zubairi, S. Misbahuddin and I. Tasadduq, **"Emergency Medical Data Transmission Systems and Techniques"**, Chapter 11, Handbook of Research on Advances in Health Informatics and Electronic Healthcare Applications : Global Adoption and Impact of Information Communication Technologies, IGI Global Publishers (http://www.igi-pub.com) 2010, ISBN 978-1-60566-030-1.

- A. Mahboob, N. Ikram and J. Zubairi, **"High Performance Linux Clusters For Breaking RSA"** Chapter 3, "Applications of Modern High Performance Networks", ebook Pages 46-75, 2009 Bentham Science Publishers, (www.bentham.org) eISBN: 978-1-60805-077-2.

- J. Zubairi, **"Emerging Methods for Voice Transport over MPLS"** Chapter 15, "VoIP Handbook: Applications, Technologies, Reliability, and Security", Pages 273-288, CRC Press, New York, USA 2008, ISBN-13: 9781420070200.

- J. Zubairi, **"Voice over IP and MPLS"**, Chapter 92, Volume II, "Handbook of Computer Networks", Editor Dr. Bidgoli 2007, ISBN-13: 978-0-471-78461-6 - John Wiley & Sons

REFEREED ARTICLES (JOURNALS)

- S. Idwan, I. Mahmood, J. Zubairi and I. Matar, **"Optimal Management of Solid Waste in Smart Cities using Internet of Things"** ISI/ESCI-indexed Springer Wireless Personal Communications Journal, Issue 1/2020, Print ISSN: 0929-6212

- I. Mahmood and J. Zubairi, **"Enabling Internet of Things Based Waste Management and Recycling in Smart Cities"**, ISI/ESCI-indexed IEEE Electrification Magazine September 2019, Pages 33-43.

● S. Misbahuddin, J. Zubairi, M. Malik and A. Al-Ahdal, **"IoT based Ambulatory Vital Signs Data Transfer System"**, Scopus indexed Journal of Computer Networks and Communications 2018(11):1-8 DOI: 10.1155/2018/4071474 Nov 2018

● J. Zubairi and S. Idwan , **"Smart Algorithms for Patient Assignments in Disasters"**, ISI-indexed Elsevier ICT Express Journal, https://doi.org/10.1016/j.icte.2017.05.005 June 2017

● S. Idwan and J. Zubairi, **"Load Balancing for Disaster Recovery and Management"**, ISI/ESCI-indexed Springer Wireless Personal Communications Journal, Vol. 90, issue 1, pp 369-379, Sept 2016

● M. Afzal, J. Zubairi, A. Akram, H, Akram, **"AGRIKIOSK – A Digital Tool to Reach Farmers And Rural Communities"**, Scopus indexed International Journal of Applied Engineering Research, Vol. 10, No. 15, pp35650-35656, Oct 2015

● M. S. Zafar, J. Zubairi and A. Khanum **"Automated Traffic Engineering with Adaptive Inter-Class Mixing,"** ISI/ESCI-indexed EURASIP Journal on Wireless Communications and Networking 2011, 2011:49 doi:10.1186/1687-1499-2011-49

● J. Zubairi and N. Bahbooh, **"Novel Schemes for Traffic Engineering in Access Domains"**, ISI/ESCI- indexed Wiley Int'l Journal of Network Management, Vol. 17 , Issue 1 (Jan'07), Pages: 69 – 83, ISSN:1099-1190.

● J. Zubairi, **"An Overview of Optical Network Bandwidth and Fault Management"** IIUM Malaysia Engineering Journal, Vol 7, No.1, 2006, Pages 47-69, ISSN 1511-788X.

● J. Zubairi, M. Elshaikh and O. Mahmoud, **"A Study of VBR Traffic Treatment in a Diffserv Domain"** International Journal of Modeling and Simulation, Vol. 23 Issue #3, 2003, Pages 187-193.

● J. Zubairi and W. Al-Khateeb, **"MPLS: Managing the New Internet"** Bulletin of Institution of Engineers Malaysia, BIL.2003, No.12, December 2003, Pages 30-38.

● M. Jaseemuddin, J. Zubairi and O. Mahmoud, **"A Study of Profiled Handoff for DiffServ-Based Mobile Nodes"** ISI/ESCI-indexed Wiley's Wireless Communications and Mobile Computing Journal, June 2002, Pages 339-356.

● J. Zubairi**, "Applications of Computer Aided Rasterstereography in Spinal Deformity Detection"** ISI/ESCI-indexed Elsevier Image and Vision Computing Journal, Vol. 20, Issue 4, April 2002, Pages 319-324.

REFEREED ARTICLES (CONFERENCE PROCEEDINGS)

● J. A. Zubairi, **"Your Flight Data is on Us!!",** 2019 IEEE 16th International Conference on Smart Cities: Improving Quality of Life Using ICT & IoT and AI (HONET-ICT), Charlotte, NC, USA, 2019, pp. 241-243, doi: 10.1109/HONET.2019.8908019, IEEE Digital Library

● I. Mahmood, S. Idwan, I. Matar and J. A. Zubairi, **"Experiments in Routing Vehicles for Municipal Services",** 2018 International Conference on High Performance Computing &

Simulation (HPCS), Orleans, 2018, pp. 993-999, doi: 10.1109/HPCS.2018.00156, IEEE Digital Library

- S. Idwan, J. Zubairi and I. Mahmood, **"Smart Solutions for Smart Cities: Using Wireless Sensor Network for Smart Dumpster Management"**, Proc. CTS 2016 conference, pp 493-497, Oct 2016, Orlando, FL, IEEE Digital Library

- J. Zubairi, E Erdogan and S Reich, **"Experiments in Fair Scheduling in 4G WiMAX and LTE"**, Proc. HPCS'2015, Amsterdam, Netherlands July 2015, IEEE Digital Library

- R. Olson, J. Zubairi and A. Biliciler, **"A Software Framework for Patient Data Handling in Emergencies and Disasters"**, Proc. CTS 2014, IEEE Digital Library

- A. Mahboob and J. Zubairi, **"Securing SCADA Systems with Open Source Software"**, Proc. HONET 2013, IEEE Digital Library

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- J. Zubairi, **"Traffic Engineering Fault Management for Optical Networks"** *invited* paper in NSF-sponsored International Workshop on High Speed Optical Networks and Enabling Technologies (HONET'04).

- N. Bahbooh and J. Zubairi, **"An Algorithm for DF Trunk Splitting to Enhance Bandwidth Utilization"** in Proc. HONET'04.

- N. Bahbooh and J. Zubairi, **"Multipath Routing in an MPLS Domain"** in Proc. ATS'04, April 2004 Arlington Virginia, USA

- J. Zubairi, **"Challenges and Issues in Global Collaborative Networking"**, *invited* paper in Collaborative Technologies Symposium, part of WMC 2004, January 2004 San Diego, USA.

- J. Zubairi, **"Networking for Tomorrow"**, *invited* paper in proceedings of NSF sponsored Information Technology Workshop, December 2003, Islamabad, Pakistan.

- J. Zubairi, **"A Comparative Study of Constrained Routing of Label Switched Paths With Shortest Distance Algorithm and TELIC"** Proc. Applied Telecommunication Symposium (ATS) , Pages 17-22, March 2003, Orlando, USA.

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- J. Zubairi and A. Kamal, **"Surface Type Recognition Using Deviation Templates"** in Proc. IEEE Intl' Conference on Intelligent Engineering Systems" Vienna, Austria, Sept. 1998, Pages 375-378.

- S. Al-Irhayim, J. Zubairi and W. Hassan, **"ATM Deployment Issues In A Broadband Heterogeneous Campus Wide Network"** in Proc. IEEE Malaysia International Communication Conference (MICC) and ISPACS, Kuala Lumpur, Malaysia, November 1997, Pages S14.3.1-S14.3.6.

- J. Zubairi and A. Kamal, **"A Methodology for Spinal Deformity Detection Using Rasterstereography"** in Proc. of 1997 IEEE ICIPS, October 1997, Vol. 2, Pages 1528-1531.

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- J. Zubairi, **"The Design and Implementation of Local Area Network in Sir Syed University"** in Proc. IEEE Conference on Networking, Karachi, Pakistan, September 1994, Pages 8-13.

- J. Zubairi, **"Image Processing Algorithms to Detect Trunk Deformities"** in Proc. South-East Asia Regional Computer Conference (SEARCC' 94), November 1994, Karachi, Pakistan, Pages 270-279.

- J. Zubairi, **"INTERNET : The Network of Computer Networks"** in Proc. Pakistan Navy Engineering College Technical Seminar, Karachi, Pakistan, June 1993, Pages 76 -85.

- J. Zubairi and G. Craig, **"A Bottom Up Methodology to Characterize Delay Faults"** in Proc. IEEE Intl' Wkshp on defect and Fault Tolerance on VLSI Systems, November 1991, (DFT' 91), Pennsylvania, USA, Pages 183 - 186.

PERIODICALS

- J. Zubairi, **"Linux in Kuala Lumpur"**, Linux Journal, SSC, issue 66, October 1999, Pages 26-28.

- J. Zubairi, **"An Overview of Wide Area Networking in Pakistan"** in Education News and Views, Oct-Dec 1995, Pakistan, Pages 3-7.

CONFERENCE PRESENTATIONS, SEMINARS AND REPORTS

- J. Zubairi, **"Connected Aircrafts Technologies, Communication and Computing Systems: Flight Data Transmission, Integration and Processing"**, (accepted) Tutorial in HPCS Conference 2020

- J. Zubairi, **"A Celebration of Student-Centered Research",** 42nd Kasling Lecture, State University of New York at Fredonia, Oct 1, 2019

- J. Zubairi, **"Integrating Research with Teaching" Keynote** 4th Annual Faculty Recognition Reception, Reed Library, SUNY at Fredonia, April 11th, 2019

- J. Zubairi, **"IoT (Internet of Things) Applications and Security Issues"**, invited talk, HONET 2017 conference, Irbid Jordan Oct 11, 2017

- J. Zubairi, **"IoT (Internet of Things) and its Applications"**, **Keynote**, ICONICS 2016 conference and invited talk, 14th FIT conference, Pakistan, December 2016

- J. Zubairi, **"Development of Smart Disaster Management System"**, invited presentation, 13th FIT conference, Pakistan, December 2015

- J. Zubairi, **"Organizing and Conducting a Totally Online Course"**, Seminar American University of Ras al Khaimah UAE May 6, 2015

- J. Zubairi, **"Flight Tracker for Global Aviation"**, Research seminar, AURAK campus April 22, 2015

- J. Zubairi, **"Hospital Queuing for Emergencies and Disasters"**, 12th FIT conference, Dec 2014, Pakistan

- J. Zubairi, **"Fault Tolerant Tracker"**, Invited seminar, DHA Suffa University Dec 2014

- J. Zubairi, "**WiMAX Scheduling Considerations for Competing Traffic"**, Invited talk, 11th FIT conference Dec 2013

- J. Zubairi and A. Mahboob, "**Security Information and Event Management Using OSSIM: A Tutorial"**, Invited Tutorial, 10th FIT Conference Dec 2012

- J. Zubairi, **"Inflight Data to Earth"**, invited presentation, 9th FIT conference Dec 2011

- J. Zubairi, **"Implementation of Sensor Network Testbed with Medical Data Sensing Application Development",** invited presentation FIT'10 Dec 21.

- J. Zubairi, **NSSPS Faculty Research Exhibition Poster Presentation** , March 2009.

- J. Zubairi, "J. Zubairi, **"Voice over MPLS Techniques"**, Keynote presentation, 12th IEEE INMIC Dec 2008.

- J. Zubairi, **"Emergency Medical Data Transmission Over Cellular and Wireless Networks"** invited presentation, FIT'08, Dec 2008.

- J. Zubairi, "J. Zubairi, "**VoIP Enabling Technologies and Deployment Opportunities**", *Keynote Presentation*, 5th Int'l Workshop on Frontiers of Information Technology, (FIT2007) Dec 2007.

- J. Zubairi, **"Enhancing Operating Systems Education with Programming Labs"** CIT 2006 (Conference on Instructional Technologies) May '06 SUNY Fredonia, USA.

- J. Zubairi and I. Tasadduq, **"Admission and Handover Issues in Wireless Networks"** *invited paper*, FIT'05, Dec '05.

- J. Zubairi, **"Issues in Network Bandwidth Management and Traffic Control"** *invited talk* in second NSF sponsored International Workshop on Frontiers of Information Technology, Dec 2004.

- J. Zubairi, **"QoS Routing for Multimedia Traffic in the Internet"** at Natural and Social Studies and Professional Studies Faculty Research Expo in SUNY at Fredonia Feb 2004.

- J. Zubairi **"Networking for the Future"** Sigma Xi talk, SUNY Fredonia, Oct 2003.

- J. Zubairi, **"Summer Visiting Faculty Observations and Impressions"** in 20th Annual APSENA Conference, Aug 2003, SUNY at Albany, USA

- J.Zubairi, **"Traffic Engineering Algorithms for Network Domains"** at Natural and Social Studies and Professional Studies Faculty Research Expo in SUNY at Fredonia, Feb 2003.

- J. Zubairi, **"An Automated Traffic Engineering Algorithm for MPLS-Diffserv Domains"** at Institute of Business Administration, University of Karachi, Pakistan, Aug 2002, invited talk.

- J. Zubairi, "**Seminar on Current Issues and Technologies for the Internet",** CIT (Center for Information Technology, Arid Agriculture University, Pakistan) and SSUET (Sir Syed University of Engineering and Technology, Pakistan), August 2002.

- K. Siddiqui and J. Zubairi, **"Online Asynchronous Learning of Information Technology"** in CIT2001, May 2001 at SUNY Geneseo.

- J. Zubairi, **"Proposed Differentiated Services on the Internet"** April 14th, 2000, Computer Science Colloquium series, SUNY at Fredonia.

- J. Zubairi, **"ATM-Ethernet Networks",** Computer Science Colloquium, SUNY at Fredonia, invited presentation on on April 9th, 1999.

- J. Zubairi, **"Installing and Using OpenGL API and PVM"**, Technical Report No. ECE/TR-01/98, Department of Electrical and Computer Engineering, International Islamic University Malaysia, December 1998.

- J. Zubairi, **"Surface Shape Recognition and Applications Using Computer Aided Rasterstereography"** Research Report, University Research Center, International Islamic University Malaysia, December 1998.

- J. Zubairi and T. Pervez, **"Development of Industry Linked Postgraduate Education in Engineering"** in RESPEC'97 (Regional Seminar on Postgraduate Education) Universiti Teknologi Malaysia, Johor Bahru, Malaysia, Sept. 1997.

- J. Zubairi, **"Implementation and Comparison of Range Image Segmentation Schemes"** in IEEE Conference on Information Technologies - Towards 2000, Karachi, Pakistan, May 1993.

- J. Zubairi, **"A Heuristic Scheme for Guidance of Delay Fault Test Pattern Generation"** in IEEP's 11th Multitopic International Symposium, Karachi, Pakistan, February 1993.

- J. Zubairi, **"Fault Analysis"** in IEEE Conference on Computers and Applications Karachi, Pakistan, May 1992.

- J. Zubairi, **"Using Wireless Sensor Networks for Medical Emergency Data Handling"**, SUNY Fredonia Social Sciences Colloquium Sep 29th 2010.

PROFESSIONAL EXPERIENCE

I have approximately 4-5 years of experience serving as Director of Computer Labs, Computer Coordinator, Systems Manager , Assistant Engineer, Senior Engineer and Software Analyst. A list of professional jobs held in chronological order can be found at http://www.cs.fredonia.edu/~zubairi/webprof.html.

ASIC and FPGA Related Experience

I am knowledgeable about ASIC design with front-end and back-end tools. I used layout tools for several VLSI layouts and front-end tools for synthesis and developed an integrated package (IDFA) to analyze the chip designs for delay faults. I planned and established ASIC design facilities based on front-end design tools from Synopsys, FPGA tools from Altera and back-end layout tools consisting of MAGIC and SPICE. Following are some relevant projects that I worked on:

- Implementation of GLITTER, a gridless channel router in VLSI chips

- Design of a scan test generator for LSSD VLSI chips in C

- Design of an expert system for circuit layout in PROLOG

- VLSI design of several combinational logic circuits

- Design of IDFA, a VLSI chip fault analysis tool for delay fault analysis

Network Related Experience

I have worked on several topics in network applications, network performance and bandwidth management protocols. Some of the projects include:

- Applications of clustering and localization in building disaster rescue

- IoT assisted smart city planning in vehicle routing

- Emergency medical data transmission for disaster sites

- Dealing with handoff issues for mobile IP nodes

- Shaping VBR traffic for Diffserv domains to reduce congestion

- Simulation of departmental and campus networks for performance analysis

- Design of TE-compliant LSP selection scheme for MPLS domains

I have extensive experience in designing, advising, managing and supervising local area networks and campus wide networks including shared Ethernet, switched Ethernet and Ethernet-ATM networks in lead positions.

Other Professional Skills and Expertise
I have worked on a variety of computing platforms including supercomputers and parallel processors. I have a rich background of programming languages including C++/C, Java, Pascal, Prolog, LISP, VHDL, FORTH and C*. I have used many systems and environments including Labview, Synopsys, Altera Max+plusII, Xilinx Project Manager, PVM, GLUT, VLSI Layout editors, SPICE based circuit simulator, NS and OPNET network simulators and many other tools. I have taught offensive security tools as part of Cyber Security courses. Currently I am directing the launch of the postgraduate Cyber Security Certificate of Advanced Studies program in Fredonia.

Some other projects that I have worked on:
- Development of a simulator of a SIMD machine in C

- Implementation of range image segmentation schemes in C

- Enhancing Performance of LU decomposition on hypercube

- Designing computer interface and its software for telemetry system

- IEEE GPIB interface for antenna positioner system and enabling its software control

- Revitalizing the servo system of specialized optical tracking equipment

- Consultancy for Siemens to resolve operational problems in on-board computer on a vehicle

- Software to process patient breathing data in real time for applications in clinical research (C/Labview)