

# SAMEE U. KHAN

## *Curriculum Vitae*

Division of Computer and Network Systems  
National Science Foundation  
Arlington, VA 22230  
+1-703-292-8061  
skhan@nsf.gov

Department of Electrical and Computer Engineering  
North Dakota State University  
Fargo, ND 58108-6050  
+1-701-231-7615  
samee.khan@ndsu.edu

### **PROFESSIONAL EXPERIENCE** (reverse chronology)

#### *National Science Foundation – Arlington, VA*

Program Director (CISE/CNS) – 2016 to present.

Responsible for overseeing the foundation's merit review process and defining new funding opportunities within the computer and network systems domain. Key responsibilities include (but not limited to) interacting with potential principal investigators, initiating, writing, and detailing solicitations, managing programs, forming and facilitating merit review panels, and recommending funding decisions. Overseeing Current Programs: Smart & Autonomous Systems (S&AS); Critical Resilient Interdependent Infrastructure Systems and Processes (CRISP); and Computer and Network Systems (CNS) – Computer Systems Research (CSR): Core, namely: CAREER, CRII, CRI, and Small, Medium and Large Competitions.

#### *North Dakota State University – Fargo, ND*

Associate Professor (Tenured) / Assistant Professor – 2008 to present.

Appointment with expectations of 40% research, 40% teaching, and 20% service time. Responsible for instruction in computer engineering topics within the Electrical and Computer Engineering Department. Developed and taught courses (at all levels) in specialized areas of computer science and engineering, such as computer architecture, big data, systems programming, cloud, and high performance computing. Collaborative research was undertaken (with 300+ researchers from over 20 countries world-wide) to examine fundamental issues (in optimization, robustness, and security) related to *computer systems*, such as big data, cloud, grid, cluster computing, cyber-physical systems, social networks, wired and wireless networks, power systems, smart grids, and optical networks. Almost all research was funded through grants, which also enabled me to develop a positive international reputation as a scholar in the general area of computer science and computer engineering.

#### **Synopsis of achievements:**

- Developed a funded research program with competitive support from federal agencies, international organizations, industries, and private foundations. The total funding received for the program exceeds \$3.5M. Most notably is the launch of the Center of Cloud Computing, with a 192-node cloud server. The center can offer a graduate certificate in cloud computing. Besides being the director of the center, I also am director of the Cyber-Physical Systems Laboratory and the director of the Distributed Computing, Communications, and Systems Laboratory.
- Research collaborations have resulted in over 350 publications, which include 7 books. Two conference papers received best paper awards and one IEEE Transactions paper was selected as the spotlight paper. One conference poster received a Silver Medal for idea and presentation. Works have received over 6900 citations with an h-index of 41 and i10-index of 142.
- Supervised the completion of 14 doctoral dissertations and 5 MS theses, a postdoctoral researcher was mentored as well. One of the doctoral students received the “College of Engineering Outstanding Student Researcher Award”. (Two other doctoral students were nominated by the Department for the award in 2015 and 2016.) I also mentored a student to receive the prestigious Southern Regional Education Board (SREB) fellowship for graduate studies.
- Supervised over 30 undergraduate research students, with several projects leading to journal papers. All current research students are supported by external funding.

- Developed GPL software simulators, such as GreenCloud and CloudNetSim++ that are one of the most widely used cloud and data center simulators by the research community.
- Elected “Fellow” of the Institution of Engineering and Technology (IET, formerly IEE, May 2013), and elected “Fellow” of the British Computer Society (BCS, Jan. 2013).
- Received the prestigious Chinese Academy of Sciences Young International Scientist Fellowship. Received the “College of Engineering and Architecture Researcher of the Year Award” in 2011. Received the IEEE TCSC Award for Excellence in Scalable Computing (Middle Career Researcher), the IEEE-USA Professional Achievement Award, the IEEE Golden Core Award, and the IEEE Computer Society Meritorious Service Certificate.
- Received several institutional awards, such as Nortel Outstanding Doctoral Dissertation Award, John Steven Schuchman Memorial Outstanding Doctoral Student Award, Outstanding Faculty Mentor Award, Sudhir Mehta Memorial International Faculty Award, and Tapestry of Diverse Talents Award.
- Served on the editorial board of top-tier journals, such as the IEEE Transactions on Computers, IET Wireless Sensor Systems, IEEE Access, IEEE Cloud Computing, IEEE Communications Surveys and Tutorials, and IEEE IT Pro.
- Held leadership positions in the IEEE Technical Area in Green Computing, the IEEE Special Technical Community on Sustainable Computing, the IEEE Technical Committee on Scalable Computing, the IEEE Technical Committee on Cyber-Physical Cloud Systems, and the IEEE SMC Technical Committee on Cybermatics.
- An ACM Distinguished Speaker and an IEEE Distinguished Lecturer, who has delivered over 20 invited lectures and 5 keynote presentations.
- Developed more than 10 undergraduate and graduate courses. All of the courses were successfully delivered and were very popular among the students.
- Chaired the computer engineering curriculum committee that was charged with the overhauling of an aging curriculum. Stakeholders included: alumni, industrial representatives, current faculty, staff, and students, and higher administration. The task was completed within a six-month period – from start to the final approval.
- Developed an extensive doctoral educational program with three institutions, each sending approximately 100 scholars to the North Dakota State University.

*More details of faculty accomplishments are provided in the subsequent sections.*

#### *Colorado State University – Fort Collins, CO*

Postdoctoral Researcher – 2007 to 2008.

Responsibilities included conducting full-time research on developing robust resource allocation mechanisms for large-scale distributed computing systems; mentoring of doctoral and undergraduate research students; and developing project proposals for funding agencies.

#### *University of Texas – Arlington, TX*

Teaching Assistant and Instructor – 2002 to 2007.

Responsibilities as a teaching assistant included: grading and delivering tutorials for various undergraduate courses, such as parallel processing, software engineering, automata theory, and programming courses. Had the opportunity to teach classes as well to the undergraduate students, namely: “Fundamentals of Software Engineering” and “Theory of Computing”.

#### *Ghulam Ishaq Khan Institute of Engineering Sciences and Technology – Topi, Pakistan*

Systems Engineer – 1999 to 2001.

Responsibilities included developing, conducting, and grading of laboratory sessions. I also was the internship experience coordinator, for which the responsibilities included identifying internships, coordinating placement of students in industries, and gathering feedback.

## **GRADUATE EDUCATION LEADERSHIP**

Initiated, drafted, and negotiated “Memorandum of Agreement” (MoA) between the North Dakota State University (NDSU) and: (i) the National University of Science and Technology (NUST), Islamabad, Pakistan; (ii) the University of Engineering and Technology (UET), Peshawar, Pakistan; and (iii) the COMSATS Institute of Information Technology (CIIT), Islamabad, Pakistan.

The core philosophy behind the agreements is human capacity building for NUST, UET, and CIIT. NUST, UET, and CIIT will identify potential faculty members, who will pursue doctoral degrees at NDSU. The economic model of the agreement is: (i) NDSU provides tuition fee support and (ii) NUST/CIIT provides monthly stipends to each of the students through funds from the Government of Pakistan that will cover living, boarding, and health insurance costs. The MoA between UET and NDSU was formally signed on June 08, 2015. The MoA between NDSU and NUST was formally signed on May 09, 2014. The MoA between CIIT and NDSU was formally signed on Nov. 09, 2010.

## **OVERVIEW OF FACULTY ACTIVITIES**

### **Teaching Experience** (with course level)

Approximately 15+ years of experience in teaching various courses at several universities. The courses listed below were taught by keeping my teaching philosophy in mind, which centers on knowledge transference. Several courses listed below were taught multiple times. Have received maximum course evaluations for most of the courses.

- Introduction to Electrical and Computer Engineering – Freshman\*
- Introduction to Computing – Freshman
- Theory of Computing – Sophomore
- Fundamentals of Software Engineering – Junior
- Computer Architecture – Senior and Graduate\*
- Computer Systems – Graduate\*
- Systems Programming – Graduate\*
- Computer Organization – Junior
- Distributed Computing – Graduate\*
- Advanced Computer Systems – Graduate\*
- Field Experience – Junior and Senior
- Image Processing – Graduate\*
- Cloud Computing – Graduate\*
- Hardware and Software for Cloud Computing – Graduate\*
- Big Data and Cloud Computing – Graduate\*
- High Performance Computing in the Cloud – Graduate\*

\*Newly developed courses.

### **Supervised Graduate Research Students** (see Appendix A for complete listing)

Served as the principal advisor for over 20 graduate students in the electrical and computer engineering, both masters and doctoral students. Apart from the above, have participated as a contributing member on several graduate committees (approximately 20 in number) in engineering and closely related fields, such as computer science. A single postdoctoral researcher also was mentored for a tenure of two years.

### **Supervised Undergraduate Research Groups** (see Appendix B for complete listing)

Served as the supervisor for over 30 undergraduate research students, who conducted research projects (some as summer and some as capstone). Almost all students were supported through external funding.

### **Grants and Contracts** (see Appendix C for complete listing)

Have served as PI or Co-PI on competitive grants totaling \$3.5M, with funding from agencies, such as NSF, DOE, US Department of State, Chinese Academy of Sciences, Fonds National de la Recherche Luxembourg, Higher Education Commission of Pakistan, as well as industries and private foundations. Have served as senior personnel on one competitive grant totaling \$20M, listed separately.

### **Publications** (see Appendix D for complete listing)

Have published over 350 research works appearing in archived journals, conference proceedings, book chapters, and technical reports. Have five books on topics, such as data centers, scalable distributed computing systems, computational intelligence, smart healthcare, and modeling and simulation of large-scale parallel and distributed computing, and communication systems.

Work has primarily been focused on the *optimization, robustness, and security of computer systems*, such as big data, cloud, grid, cluster computing, embedded systems, edge computing, Internet of Things, social networks, wired and wireless networks, cyber-physical systems, smart grids, and optical networks.

Works have appeared in premier venues, such as IEEE Transactions of Computers, Information Sciences, IEEE Transactions on Cloud Computing, IEEE Transactions on Services Computing, ACM/Springer Mobile Networks and Applications, Journal of Parallel and Distributed Computing, IEEE Transactions on Parallel and Distributed Systems, IEEE Cloud Computing, IET Wireless Sensor Systems, IEEE Transactions on Knowledge and Data Engineering, Cluster Computing, IEEE Transaction on Wireless Communications, Future Generation of Computing Systems, IEEE Systems Journal, IEEE Journal of Biomedical and Health Informatics, Journal of Supercomputing, IET Networks, IEEE Communications Surveys and Tutorials, IEEE Communications Letters, Concurrency and Computing, Information Systems, Parallel Computing, IET Image Processing, and IEEE Transactions on Emerging Topics in Computing.

Works have received over 6900 citations (source Google Scholar), with an h-index of 41 and an i10-index of 142. Two conference papers received the best paper award. On conference poster received a Silver Medal. One IEEE Transactions article on the topic of big data and cloud computing was declared as the spotlight paper.

### **GPL Software Simulators**

#### *CloudNetSim++*

This is a toolkit to facilitate simulation of distributed data center architectures, energy models, and high speed optical data center communication networks. The CloudNetSim++ is designed to allow researchers to incorporate custom protocols and applications to analyze under realistic data center architectures with network traffic patterns. CloudNetSim++ is the first cloud computing simulator that uses real network physical characteristics to model distributed data centers. CloudNetSim++ provides a generic framework that allows users to define SLA policies, scheduling algorithms, and modules for different components of data centers without worrying about low-level details with ease and minimum effort. The simulator can be accessed from: <http://cloudnetsim.seecs.edu.pk/>.

#### *GreenCloud*

This is a sophisticated packet-level simulator for energy-aware cloud computing data centers with a focus on cloud communications. It offers a detailed fine-grained modeling of the energy consumed by the data center IT equipment, such as computing servers, network switches, and communication links. GreenCloud can be used to develop novel solutions in monitoring, resource allocation, workload scheduling as well as optimization of communication protocols and network infrastructures. The simulator can be accessed from: <http://greencloud.gforge.uni.lu/>.

## **Presentations and Lectures** (see Appendix E for complete listing)

Have delivered over 100 public presentations pertaining to my research. These include over 20 invited lectures and 5 keynote presentations. Presentations at conferences are not listed to avoid duplication.

## **Honors and Awards** (reverse chronology)

IEEE-USA Professional Achievement Award, 2016.

IEEE Golden Core Member Award, 2016.

IEEE TCSC Award for Excellence in Scalable Computing Research (Middle Career Researcher), 2016.

IEEE Distinguished Lecturer, 2016.

IEEE Computer Society Meritorious Service Certificate, 2016.

Tapestry of Diverse Talents Award, North Dakota State University, ND, USA, 2016.

ACM Distinguished Speaker, 2015.

Exemplary Editor, IEEE Communications Surveys and Tutorials, IEEE Communications Society, 2014.

Fellow of the Institution of Engineering and Technology (IET, formerly IEE), elected May 2013.

Fellow of the British Computer Society (BCS), elected Jan. 2013.

Outstanding Faculty Mentor Award, Summer Undergraduate Research STEM Program, North Dakota State University, ND, USA, 2013.

Best Paper Award, IEEE International Conference on Scalable Computing and Communications (ScalCom), Jiangsu, China, Dec. 2012.

Sudhir Mehta Memorial International Faculty Award, North Dakota State University, ND, USA, 2012.

Chinese Academy of Sciences Young International Scientist Fellowship, 2011.

Researcher of the Year Award, College of Engineering, North Dakota State University, Fargo, ND, USA, 2011.

Best Paper Award, ACM/IEEE International Conference on Green Computing and Communications (GreenCom), Hangzhou, China, Dec. 2010.

Nortel Outstanding Doctoral Dissertation Award, University of Texas, Arlington, TX, USA, 2008.

John Steven Schuchman Memorial Outstanding Doctoral Student Award, University of Texas, Arlington, TX, USA, 2007.

Inducted in Upsilon Pi Epsilon, the Computer Science Honors Society, 2007.

## **Hosting of Researchers** (reverse chronology)

*Prof. Asad Malik*, National University of Sciences and Technology, Pakistan (Aug. 2014 – Sep. 2014).

Designed, implemented, and benchmarked the CloudNetSim++ simulator. The joint work has resulted in several research papers and co-supervision of research students.

*Prof. Camelia Chira*, Institute of Technology Castilla Leon, Spain (May 2013 – June 2013).

Worked on projects related to social networking and recommendation systems. The visitor also closely mentored one female doctoral student during her stay.

*Prof. Pascal Bouvry*, University of Luxembourg, Luxembourg (Nov. 2008 and Nov. 2009).

Worked on several projects that have over the number of years generated close to 50 publications on the topics on energy-efficient computing, big data, and modeling and simulation of data centers. Several projects were also funded due to this collaboration, which resulted in the development of one of the most popular simulators, the GreenCloud.

## **OTHER PROFESSIONAL ACTIVITIES**

### **Appointments and Services** (see Appendix F for complete listing)

Have served the scientific community as editor for over 15 journals, such as IEEE Transactions on Computers, IET Wireless Sensor Systems, IEEE Cloud Computing, IEEE Access, IEEE IT Pro, and IEEE Communications Surveys and Tutorials. Other notable journals include Cluster Computing (Springer), Security and Communication Networks (Wiley), Scalable Computing and Communications (Springer), and Information Systems (Elsevier).

Have served on more than 100 technical committees of IEEE and ACM sponsored conferences. Have served as reviewer for nearly (totaling more than 50) all premier IEEE and ACM transactions and journals on regular basis. Have served as panelist for funding agencies, such as NSF, DoD, EU, and NSERC.

Served on several important university committees, such as the graduate faculty council and program review committees. Moreover, had the privilege to serve on several important hiring committees, such as the Chair of Electrical and Computer Engineering Department, and the University Provost. Furthermore, I successfully led the computer engineering curriculum committee that proposed and implemented a totally overhauled curriculum. Hold leadership positions in the IEEE Technical Area in Green Computing, the IEEE Special Technical Community on Sustainable Computing, the IEEE Technical Committee on Scalable Computing, the IEEE Technical Committee on Cyber-Physical Cloud Systems, and the IEEE SMC Technical Committee on Cybermatics.

Have served on the community advisory board of the local Public Broadcasting Service (PBS) subsidy, the Prairie Public Television, which serves North Dakota, Minnesota, and Manitoba in Canada. Have also served on the AccessEngineering Leadership Team for the Disabilities, Opportunities, Internetworking, and Technology (DO-IT) Center at the University of Washington. The core philosophy of the DO-IT center is to make education accessible to all individuals regardless of their abilities and capabilities.

### **Professional Membership and Certifications**

Institute of Engineering and Technology (IET), Fellow.

British Computer Society (BCS), Fellow.

Institute of Electrical and Electronics Engineers (IEEE), Senior Member.

Association of Computing Machinery (ACM), Life Member.

American Association for the Advancement of Science (AAAS), Member.

### **Professional Development Activities/Training** (reverse chronology)

Participated in “Access Engineering – Building Capacity to Increase the Participation of People with Disabilities in Engineering,” sponsors: National Science Foundation (NSF) and University of Washington, Seattle, WA, USA, Apr. 08 – Apr. 10, 2015.

Participated in “Leadership Workshop on Changing Academic Culture,” sponsors: NSF FORWARD Program, North Dakota State University (NDSU) Office of the Provost, and NDSU Office of the Dean of Engineering, Fargo, ND, USA, Mar. 16, 2015.

Participated in “Compact for Faculty Diversity Institute on Teaching and Mentoring for Scholars,” sponsor: Southern Regional Education Board (SREB), Atlanta, GA, USA, Oct. 30 – Nov. 2, 2014.

Participated in “Leadership in Academia Workshop,” sponsors: NSF FORWARD Program, NDSU Office of the Provost, and NDSU Office of the Dean of Engineering, Fargo, ND, USA, Mar. 17, 2014.

Participated in “NDSU Teaching and Learning Conference,” sponsor: NDSU Office of the Provost, Fargo, ND, USA, Aug. 21, 2013, Aug. 20, 2014, and Aug. 19, 2015.

## **HONARARY APPOINTMENTS** (reverse chronology)

*National University of Science and Technology – Islamabad, Pakistan*, Adjunct Professor, 2014–2016.

*Chinese Academy of Sciences – Shenzhen, China*, Visiting Professor, 2012–2016.

*North Dakota State University – Fargo, ND, USA*, Adjunct Professor of Computer Science, 2011–2016.

*COMSATS Institute of Information Technology – Islamabad, Pakistan*, Adjunct Professor, 2009–2016.

## **FORMAL EDUCATION**

Ph.D. University of Texas, Arlington, TX, USA.  
*Computer Science*, (Jan. 2002 – Aug. 2007).  
Dissertation Title: Game Theoretical Data Replication Techniques for Large-scale Autonomous Distributed Computing Systems.

BS Ghulam Ishaq Khan Institute of Engineering Sciences and Technology, Topi, Pakistan.  
*Computer System Engineering*, (Aug. 1995 – May 1999).

## **CITIZENSHIP**

USA (Security Clearance: None)

## APPENDIX A

### Supervised Graduate Research Students

#### Postdoctoral Researcher

- Tziritas, Nikos, May 2011 – May 2013.

#### Doctoral Dissertations (reverse chronological)

- Abbas, Assad, “Cloud based Recommendation Services for Healthcare,” May 2016.
- Mahmood, Zahid, “Enhanced Augmented Reality Framework for Sports Entertainment Applications,” Dec. 2015.
- Fayyaz, Ahmad, “Energy-efficient Resource Scheduling Methodologies for Cluster & Cloud Computing,” July 2015.
- Jawad, Muhammad, “Energy-efficient Data Centers for On-Demand Cloud Services,” July 2015.
- Usman, Saeeda, “On Measuring the Robustness of Cloud Computing Systems,” July 2015.
- Khan, Muhammad Usman Shahid, “Utilizing Recommender Systems as an Analysis Tool to Measure Network Dynamics,” May 2015.
- Sahibzada, Muhammad, “Power System Stability Enhancement through Data Center Ancillary Services,” May 2015.
- Ali, Mazhar, “Towards Secure Cloud Storage Services,” May 2015.
- Irfan, Rizwana, “Contextualization in Large-scale Social Networks,” Dec. 2014.
- Pinel, Fredric, “Energy-Performance Optimization in the Cloud,” Aug. 2014.
- Diaz, Cesar O., “Energy-efficient Scheduling in Grid Computing and Resource Allocation in Opportunistic Cloud Computing: Models and Algorithms,” Aug. 2014.
- Bilal, Kashif, “Analysis and Characterization of Cloud Based Data Center Architectures for Performance, Robustness, Energy Efficiency, and Thermal Uniformity,” May 2014.
  - The 2014 College of Engineering Graduate Student Researcher of the Year Awardee
- Khalid, Osman, “Efficient Message Dissemination Framework for Diverse Wireless Networks,” May 2014.
- Malik, Saif ur Rehman, “Using Formal Methods to Validate the Usage, Protocols, and Feasibility in Large-scale Computing Systems,” May 2014.

#### MS Thesis (reverse chronological)

- Sadikaj, Ylli, “Personalized Health Insurance Services using Big Data,” May 2016.
  - US Agency for International Development’s (USAID) Transformational Leadership Scholarship Recipient
- Ghosh, Ankan, “Content Dissemination Schemes for Mobile Clouds: Modeling, Analysis, Verification,” Dec. 2014.
- Dhamotharan, Revathi, “Secure Data Sharing in Clouds,” Dec. 2014.
- Valentini, Giorgio L., “Energy-efficient Resource Utilization in Cloud Computing,” May 2012.
  - Fulbright Scholar
- Saula, Oluwasijibomi, “Phasor Measurement Unit Placements for Complete Observability Using Linear-time, Quadratic-time, and Subquadratic-time Heuristics,” May 2010.



## **APPENDIX B**

### **Supervised Undergraduate Research Students**

#### **Completed Research Projects** (reverse chronological)

- Bossert, Kasey; Danzl, Joshua; Hennessy, Casey; Moon, Jennifer
  - Multipurpose Cart for Persons with Disabilities, Dec. 2016.
- Jelkin, Thomas; Miller, Scott; and Wanner, Austin, May 2016.
  - Speech to Overhead Text Display
- Johnson, Scott and Skarphol, Jacob, May 2016.
  - Crowd Sourced Public Transit Information System
- Birrenkott, Jordan; Fowley, William; and Leerssen, Jacob, Dec. 2015.
  - Custom Keyboard for Disabled Veterans
- Bromenshenkel, Dale; Hoffmann, Bradley; and Massey, James, Dec. 2015.
  - Internet of Things Platform
- Bosch, Lelan; Thorson, Kyle; and Simanovich, Igor, May 2015.
  - Voice-Enabled Vending Machine for Disabled Veterans
- Bernhardt, Dylan; Schur, Gabriel; and Xiao, Xinhao, May 2015.
  - Voice Activated Door Opener for Disabled Veterans
- Davis, Jawaan; Ghebreyohannes, Mehari; and Suleiman, Ahmed, Dec. 2014.
  - Personal Audio Amplifier for the Elderly with Impaired Hearing
- Gao, Peng; Keller, Tyler; Reller, Jeremy; and Zou, Yili, Dec. 2014.
  - IR Environmental Control Device for the Elderly with Impaired Motor Skills
- Larson, Joe; Roehrich, Chad; and Todd, Tyler, Dec. 2014.
  - Wireless Bluetooth Communication Devices
- Jensen, Nathan R.; and Lassonde, Walter I., Dec. 2010.
  - Robust PMU Coverage
- Adamek, Joshua; Brodsho, Brady A.; and Kropp, Garrett, Dec. 2009.
  - PMU Power Grid Coverage
- Leingang, James J.; Lindberg, Peder; and Lysaker, Daniel, Dec. 2009.
  - Energy-aware Data Centers

#### **Summer Undergraduate Research Program** (reverse chronological)

- Ojewole, Omolola, Summer 2015 (Alabama A&M University, AL, USA).
- Silva, Marcus, Summer 2014 (Instituto Federal de Educaçao, Brazil).
- Ashley, Jamin, Summer 2013 and Summer 2014 (Prairie A&M University, TX, USA).
- Okoroha, Chiamaka, Summer 2013 (Bowie State University, MD, USA).
- Lindberg, Peder, Summer 2009 (North Dakota State University, ND, USA).

## APPENDIX C

### Grants and Contracts

A total of \$3,673,993 (\$3,500,349 (*external*) + \$173,644 (*internal*)) has been secured as competitive grants to support various research and educational projects. Have received one grant as senior personnel, totaling \$20M from the NSF, as well, which is listed separately. Have received numerous travel grants, which are also listed separately.

#### External Research and Educational Grants as PI/Co-PI (reverse chronology on the end date)

Intergovernmental Personnel Agreement, Host organization: National Science Foundation (NSF), \$438,292, July 2016 – July 2018.

II-NEW: Probe Station to Characterize Body Area Network Sensor ICs for Cyber Physical Systems Applications (Co-PI, with D. Dawn, J. Wang, N. Gong, and S. C. Smith), Funding source: National Science Foundation (NSF), CNS 1628961, \$362,865, Aug. 2016 – Aug. 2019. (Relinquished the grant due to NSF appointment.)

GARDE: Design Projects to Enable Veteran Reintegration in an Educational System (PI, with N. Gong, S. C. Smith, J. S. Glower, and B. Johnson-Messelt), Funding source: National Science Foundation (NSF), CBET 1401507, \$124,296, July 2014 – June 2019. (Relinquished the grant due to NSF appointment.)

Software Support for Cloud and Big-data Computing (PI), Funding source: Oracle, \$374,250, Apr. 2014 – Mar. 2016.

Accessing Campus Readiness for Accessibility (PI), Funding source: National Science Foundation (NSF), EEC 1444961, Subcontract: University of Washington, \$3,000 Sep. 2015 – Nov. 2015.

MRI: Acquisition of Data-Intensive Cyberinfrastructure for Research and Education (DICRE) at North Dakota State University (Co-PI, with D. Katti, A. M. Denton, M. M. Ossowski, and W. Sun), Funding source: National Science Foundation (NSF), CNS 1229316, \$571,429 (\$400,000 (NSF) and \$171,429 (cost sharing)), Aug. 2012 – Sep. 2015.

CSCC - Cogi, Inc - Grad Assistant (PI), Funding source: ND Centers of Excellence, Subcontract from NDSU Center of Excellence in Sensors, Communications, and Controls, \$19,776, Mar. 2014 – June 2015.

Robustness-aware Energy Efficient Data Center (PI), Funding source: Department of Energy (DOE), Subcontract from NDSU Center for Computationally Assisted Science and Technology, \$27,942, Aug. 2013 – Aug. 2014.

A Hybrid Solar Water Heating System using CO<sub>2</sub> as Working Fluid (Co-PI, with S. Krishnan, N. Khan, and W. H. Bokhari), Pakistan-US Science and Technology Cooperation Program, Funding source: US Department of State (jointly administered by the National Academies and Higher Education Commission of Pakistan), \$296,043, Nov. 2010 – Sep. 2013.

Young International Scientist Fellowship (PI), Funding source: Chinese Academy of Sciences, RMB265,000, May 2012 – May 2013.

Energy-efficient Resource Allocation in Autonomic Cloud Computing (Co-PI, with P. Bouvry and T. Engel), Funding source: Fonds National de la Recherche Luxembourg (FNR), €432,000, Jan. 2010 – Dec. 2012.

Trust-assurance for Critical Infrastructures in Multi-Agents Environments (Co-PI, with B. Gateau, D. Khadraoui, P. Bouvry, E. Niemela, and O. Boissier), Funding source: Fonds National de la Recherche Luxembourg (FNR), €482,000, Jan. 2009 – Dec. 2010.

Development of Cloud Computing Thematic Research and Educational Program (Co-PI, with N. Min-Allah), Program for Collaborative Research, Funding source: Higher Education Commission of Pakistan, PKR365,000, May 2010 – Aug. 2010.

#### Internal Research and Educational Grants as PI/Co-PI (reverse chronology on the end date)

Increasing the Entrepreneurship Spirit by Active Interaction with Area Entrepreneurs (PI), NDSU Development Foundation Board of Trustees Endowment, Funding source: North Dakota State University Development Foundation, \$1,000, May 2015 – June 2016.

Low-cost Road Condition Profiling and Analysis System for the State of North Dakota (**PI**, with Y. Huang), The Ozbun Economic Development Award, Funding source: North Dakota State University Development Foundation, \$25,000, June 2015 – June 2016.

Establishment of NDSU Cloud Computing Training Center (**PI**), SU Impact Fund, Funding source: North Dakota State University Development Foundation, \$41,000, Oct. 2012 – Sep. 2015.

Residential and Commercial Building Audit System for the State of North Dakota (**PI**, with J. Glower, R. Guggisberg, and D. Mahli), The Ozbun Economic Development Award, Funding source: North Dakota State University Development Foundation, \$20,000, May 2013 – Oct. 2014.

Development of a General Purpose iPhone and Android Application to Assist NDSU Students with Disabilities (**PI**), NDSU Development Foundation Board of Trustees Endowment, Funding source: North Dakota State University Development Foundation, \$1,000, May 2012 – Dec. 2013.

Integrated Information System for the City of Fargo (**PI**, with D. Mahli), The Efficiency in Government Award, Funding source: North Dakota State University Development Foundation, \$20,000, May 2012 – July 2013.

Plan to Recruit Pakistani Doctoral Students (**PI**), Funding source: Office of Equity, Diversity and Global Outreach, North Dakota State University, \$1,000, May 2012 – Dec. 2012.

Reintegration of Veterans in an Educational Setup (**PI**), Diversity Initiatives Grant, Funding source: Office of Equity, Diversity and Global Outreach, North Dakota State University, \$150, Aug. 2012 – Sep. 2012.

Native Americans: Pursuit of Higher Education (**PI**), Diversity Initiatives Grant, Funding source: Office of Equity, Diversity and Global Outreach, North Dakota State University, \$200, Mar. 2012 – May 2012.

Energy-efficient Resource Allocation in Large-scale Systems (**PI**), Electrical and Computer Engineering Department Research Funds, Funding source: North Dakota State University, \$60,000, Sep. 2008 – Aug. 2010.

PMU Placements in Large-scale Power Networks (**PI**), Electrical and Computer Engineering Department Research Funds, Funding source: North Dakota State University, \$4,294, Feb. 2010 – May 2010.

### **Research and Educational Grants as Senior Personnel**

Advancing ND Research Infrastructure: Integrated Strategies for Growth (**Senior Personnel**), Funding source: National Science Foundation (NSF), \$20,000,000, Sep. 2014 – Aug. 2019. (Relinquished the grant due to NSF appointment.)

### **Travel Grants**

Received more than \$10,000 as travel grants from the NDSU President, Provost, Dean of Engineering, NDSU Electrical and Computer Engineering Department, Higher Education Commission of Pakistan, Mathematical Sciences Research Institute (MSRI), Society of Photo-Optical Instrumentation Engineers (SPIE), and Institute of Electrical and Electronics Engineers (IEEE).

## APPENDIX D

### Publications

#### Synopsis

- A total of 375 publications are listed in the reverse chronological order.
- Books: 7; journal articles: 166; magazine articles: 9; conference papers: 121; conference posters: 10; book chapters: 30; journal editorials: 17; edited proceedings: 6; technical reports: 6; and technical blogs: 3
- Only published and officially accepted works are listed in reverse chronology.
- A total of 74 articles are published in IEEE/ACM/IET journals (35 in IEEE Transactions).
- Two conference papers received the Best Paper Award.
- One conference poster received a Silver Medal for idea and presentation.
- One IEEE Transactions paper was declared as the spotlight paper.
- Total citations: 6900+ (Google Scholar); h-index: 41; and i10-index: 142.

#### Books

O. Khalid, **S. U. Khan**, and A. Y. Zomaya, *Big Data Recommender Systems: Recent Trends and Advancements*, IET Press, London, UK. (Production date in 2018.)

A. W. Malik, **S. U. Khan**, and A. Y. Zomaya, *Parallel and Distributed Simulations for Big Data Processing*, IET Press, London, UK. (Production date in 2018.)

**S. U. Khan**, A. Y. Zomaya, and A. Abbas, *Handbook of Large-scale Distributed Computing in Smart Healthcare*, Springer-Verlag, New York, USA. (Production date in 2017.)

**S. U. Khan** and A. Y. Zomaya, *Handbook on Data Centers*, Springer-Verlag, New York, USA, 2015, XIII, 1334 p., 439 illus., ISBN 978-1-4939-2091-4.

**S. U. Khan**, A. Y. Zomaya, and L. Wang, *Scalable Computing and Communications: Theory and Practice*, Wiley-IEEE Computer Society Press, New Jersey, USA, 2013, XXI, 856 p., 303 illus., ISBN 978-1-1181-6265-1.

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## **Conference Posters**

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Y. Sadikaj, A. Abbas, U. S. Khan, A. Yusoff, J. Ashley, and **S. U. Khan**, “Personalized Health Insurance Services using Big Data,” in *ND EPSCoR State Conference*, sponsor: North Dakota Experimental Program to Stimulate Competitive Research (EPSCoR), Grand Forks, ND, USA, Apr. 2016.

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## **Edited Proceedings**

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*Proceedings of the 11th IEEE International Conference on Frontiers of Information Technology (FIT)*, sponsor: IEEE Computer Society, Islamabad, Pakistan, Dec. 2013, T. Akram, P. Palensky, C.-Z. Xu, P. Balaji, S. A. Khan, I. Khan, S. A. Madani, and **S. U. Khan**, Eds., ISBN 978–1–4799–2293–2.

*Proceedings of the 10th IEEE International Conference on Frontiers of Information Technology (FIT)*, sponsor: IEEE Computer Society, Islamabad, Pakistan, Dec. 2012, H. Rashid, P. Palensky, A. Y. Zomaya, C.-Z. Xu, P. Balaji, **S. U. Khan**, S. A. Madani, and S. A. Khan, Eds., ISBN 978–0–7695–4927–9.

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## **Technical Reports**

C. Perera, R. Ranjan, L. Wang, **S. U. Khan**, A. Y. Zomaya, “Privacy of Big Data in the Internet of Things Era,” Tech. Rep., CoRR abs/1412.8339, 2014.

K. Alhamazani, R. Ranjan, K. Mitra, F. A. Rabhi, **S. U. Khan**, A. Guabtni, and V. Bhatnagar, “An Overview of the Commercial Cloud Monitoring Tools: Research Dimensions, Design Issues, and State-of-the-Art,” Tech. Rep., arXiv:1312.6170, 2013.

N. Tziritas, C.-Z. Xu, J. Hong, and **S. U. Khan**, “An Optimal Fully Distributed Algorithm to Minimize the Resource Consumption of Cloud Applications,” Tech. Rep., arXiv:1206.6207v1, 2012.

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### **Technical Blogs**

**S. U. Khan**, R Sandhu, M. R. Hagerott, M. Carlisle, and W. Shi, “Roundtable on Security Issues in the Cloud-assisted Internet of Things,” *IEEE Cloud Computing*, May 20, 2016. (IEEE Web Extras.) (<http://tinyurl.com/jd3qlnq>.)

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O. Khalid, K. Bilal, and **S. U. Khan**, “Green Computing,” *IEEE Technical Committee on Scalable Computing Blog*, Apr. 16, 2012. (<http://tinyurl.com/8p6jztg>).

## **APPENDIX E**

### **Presentations and Lectures**

#### **Keynote Speeches** (reverse chronology)

“Internet, Things, and Smartness,” IEEE Workshop on Smart Internet of Things (SmartIoT), sponsor: IEEE Computer Society, San Jose, CA, USA, October 2017.

“Cloud and Beyond,” 4th IEEE International Conference on Cyber Security and Cloud Computing (CSCloud), sponsor: IEEE Computer Society, New York, NY, USA, June 2017.

“Big Data Based Recommendation Approaches for Healthcare,” 12th IEEE International Conference on High-Capacity Optical Networks and Enabling/Emerging Technologies (HONET), sponsor: IEEE Communications Society, Islamabad, Pakistan, Dec. 2015.

“The Role of ICT in Universal Design in Learning,” 13th IEEE International Conference on Frontiers of Information Technology (FIT), sponsor: IEEE Computer Society, Islamabad, Pakistan, Dec. 2015.

“Big Data Cloud Computing,” 12th IEEE International Conference on Frontiers of Information Technology (FIT), sponsor: IEEE Computer Society, Islamabad, Pakistan, Dec. 2014.

“Data Centers: Modeling and Simulation,” High Performance of Modeling and Simulation (HiPMoS) track of the 27th European Conference on Modeling and Simulation (ECMS), sponsor: European Council for Modeling and Simulation, Aalesund, Norway, May 2013.

“The Greening of Data Center Networks: Trends, Challenges, and Opportunities,” 10th IEEE International Conference on Frontiers of Information Technology (FIT), sponsor: IEEE Computer Society, Islamabad, Pakistan, Dec. 2012.

#### **Invited Talks** (reverse chronology)

“Perspectives on IoT,” IoT Academic Collaborative Symposium, host: Case Western Reserve University and Cleveland State University, Cleveland, OH, USA, May 2017.

“Living on the Edge,” 1st IEEE/ACM Symposium on Edge Computing (SEC), sponsor: IEEE Computer Society and ACM SIGMobile, Washington DC, USA, Oct. 2016.

“Sustainable Computer Systems,” Department of Computer Science and Engineering, Mississippi State University, Starkville, MS, USA, Mar. 2016.

“Some Thoughts on Computer Systems Research,” Division of Computer and Network Systems, National Science Foundation, Washington DC, USA, Mar. 2016.

“Big Data Recommendation Systems,” Department of Computer Science, Missouri University of Science and Technology, Rolla, MO, USA, Feb. 2016.

“Data Center Networks: Trends, Opportunities, and Challenges,” Department of Computer Science and Engineering, University of Texas, Arlington, TX, USA, Feb. 2016.

“Cloud, Big Data, and Recommendation Systems: Making Health Care and Emergency Management Possible,” Department of Computer Science, United States Air Force Academy, Colorado Springs, CO, USA, Jan. 2016.

“Understanding Cloud: Data Centers,” Faculty of Computer Science and Engineering, Ghulam Ishaq Khan Institute of Engineering Sciences and Technology, Topi, Pakistan, Dec. 2015.

“Big Data Recommendation Systems,” Department of Computer Science and Engineering, University of Nevada, Reno, NV, USA, Dec. 2015.

“Cybersecurity,” College of Engineering and Technology, Old Dominion University, Norfolk, VA, USA, Nov. 2015.

“Graduate Education: Securing the American Ingenuity,” Division of Graduate Education, National Science Foundation, Washington DC, USA, Apr. 2015.

“Using Design Projects to Serve Veterans with Disabilities,” Access Engineering – Capacity Building Institute, University of Washington, Seattle, WA, USA, Apr. 2015.

“Cloud and Big Data,” Faculty of Computer Science and Engineering, Ghulam Ishaq Khan Institute of Engineering Sciences and Technology, Topi, Pakistan, Dec. 2014.

“U. S. and Pakistani S&T Cooperative Projects: Programs and Potential,” Science, Technology, and Engineering: From Innovation to Implementation Conference, Islamabad, Pakistan, May 2014.

“Solar Water Heating System using CO<sub>2</sub> as Working Fluid,” Technology Transfer Symposium, sponsors: Pakistan-US Science and Technology Cooperation Program and the US Department of State, Islamabad, Pakistan, Jan. 2013.

“What are Data Centers?” Department of Computer Science, National University of Computer and Emerging Sciences, Islamabad, Pakistan, Jan. 2013.

“Achieving Energy-Efficiency in Data Centers,” Faculty of Computer Science and Engineering, Ghulam Ishaq Khan Institute of Engineering Sciences and Technology, Topi, Pakistan, Dec. 2012.

“Data Centers and Clouds,” Department of Computer Sciences, Quaid-i-Azam University, Islamabad, Pakistan, Dec. 2012.

“Data Centers and Cloud Computing,” Department of Electrical Engineering, University of Engineering and Technology, Peshawar, Pakistan, Dec. 2012.

“Data Centers: Challenges and Opportunities,” School of Electrical Engineering and Computer Science, National University of Sciences and Technology, Islamabad, Pakistan, Dec. 2012.

“iPhone, iPad, iTravel: Traveling Abroad Safely with Mobile Devices,” Information Technology Division and the Office of International Programs, North Dakota State University, Fargo, ND, USA, Oct. 2012.

“The Greening of Data Center Networks: Trends, Challenges, and Opportunities,” Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, China, July 2012.

“Trends in Sustainable Computing and Data-intensive HPC,” Department of Computer Science and Operations Research, North Dakota State University, Fargo, ND, USA, Feb. 2012.

“iPakistan: invest in Pakistan,” Office of International Programs, North Dakota State University, Fargo, ND, USA, Nov. 2011.

“Energy, Power, and Thermal-aware Data Center Computations and Communications,” Computer Science and Communications Research Unit, University of Luxembourg, Luxembourg, June 2010.

“Energy-efficient Computing,” Department of Civil Engineering, North Dakota State University, Fargo, ND, USA, Mar. 2009.

“Optimizing the Energy Consumption and Performance of Computational Grids,” Department of Electrical and Computer Engineering, North Dakota State University, Fargo, ND, USA, Apr. 2008.

“On the Joint Energy and Performance Optimization of Large-scale Systems,” Department of Computer Science, Utah State University, Logan, UT, USA, Mar. 2008.

“Optimizing the Energy Consumption and Performance of Computational Grids,” Department of Computer Science and Engineering, University of Nevada, Reno, NV, USA, Feb. 2008.

“Autonomous Data Replication in Large-scale Distributed Systems,” Department of Electrical and Computer Engineering, Colorado State University, Sep. 2008.

“Multiobjective Optimization for Large-scale Distributed Systems,” Department of Electrical and Computer Engineering, Wichita State University, Wichita, KN, USA, May 2007.

“Resource Allocation in Large-scale Distributed Systems,” Department of Computer Science, Indiana University, South Bend, IN, USA, May 2007.

### **Tutorials Presented** (reverse chronology)

“CloudNetSim++: A GUI Based Framework for Modeling and Simulation of Data Centers in OMNET++,” 12th IEEE International Symposium on High Capacity Optical Networks and Enabling Technologies (HONET), sponsor: IEEE Communications Society, Islamabad, Pakistan, Dec. 2015 (a two-hour tutorial).

“Modeling and Simulation of Data Centers using OMNET++,” 13th IEEE International Conference on Frontiers of Information Technology (FIT), sponsor: IEEE Computer Society, Islamabad, Pakistan, Dec. 2015 (a one-hour tutorial).

“Recommendation Systems for Big Data,” The 2014 World Congress in Computer Science, Computer Engineering, and Applied Computing (WORLDCOMP), cosponsors: World Academy of Science and Computer Science Research, Education, and Applications (CSREA), Las Vegas, NV, July 2014 (a half-day tutorial).

“Data Center Networks,” The 2013 World Congress in Computer Science, Computer Engineering, and Applied Computing (WORLDCOMP), cosponsors: World Academy of Science and Computer Science Research, Education, and Applications (CSREA), Las Vegas, NV, July 2013 (a half-day tutorial).

“Cloud Computing: Virtualization and Modeling,” COMSATS Institute of Information Technology, Abbottabad, Pakistan, Dec. 2012 (a two-day tutorial).

## **APPENDIX F**

### **Appointments and Service Activities**

#### **Editorship** (reverse chronology on the end date)

- *Current Appointments*
  - IEEE Access (2014 – Present).
  - IEEE Communications Surveys and Tutorials (2013 – Present).
  - IEEE IT Pro (2015 – Present).
  - IET Wireless Sensor Systems (2016 – Present).
  - IET Cyber-Physical Systems: Theory and Applications (2016 – Present).
  - Scalable Computing and Communications, Springer (2016 – Present).
  
- *Past Appointments*
  - IEEE Cloud Computing (2014 – 2016).
  - IEEE Transactions on Computers (2014 – 2015).
  - Informatica, Slovene Informatika Society (2009 – 2015).
  - Interdisciplinary Sciences, Springer (2009 – 2015).
  - Cluster Computing, Springer (2010 – 2015).
  - International Journal of Communication Systems, Wiley (2009 – 2015).
  - Security and Communication Networks, Wiley (2009 – 2015).
  - Informatica, Slovene Informatika Society (2009 – 2015).
  - Journal of Communication Networks and Distributed Systems, Inderscience (2009 – 2015).
  - International Journal of Distributed Systems and Technologies, IGI Global (2009 – 2015).
  - International Journal of Grid and Utility Computing, Inderscience (2011 – 2015).
  - Journal of Cloud Computing, Springer (2014 – 2015).
  - Journal of Information Technology Research, IGI Global (2009 – 2015).
  - Multiagent and Grid Systems, IOS press (2009 – 2015).
  - International Journal of Green Computing, IGI Global (2009 – 2013).
  - Scalable Computing and Communications, Springer (2012 – 2013).
  - Information Systems, Elsevier (2009 – 2011).

#### **Expert Panelist for Professional Organizations, Conferences, and Agencies** (listed as top down hierarchy)

- Chair of the Steering Committee of the IEEE Technical Area in Green Computing (2011 – Present).
- Vice Communication Chair of the IEEE Special Technical Community on Sustainable Computing (2015 – Present).
- Member of the Executive Committee of the IEEE Technical Committee on Scalable Computing (2011 – Present).
- Member of the IEEE Technical Committee on Cyber-Physical Cloud Systems (2010 – Present).
- Member of the IEEE SMC Technical Committee on Cybermatics (2017 – Present).
- Member of the Advisory Committee on the IET Big Data book series (2015 – Present).
- Proposal review panelist for the National Science Foundation (NSF), USA.
- Proposal review panelist for the Department of Defense (DoD), USA.
- Proposal review panelist for the US National Academy of Sciences (NAS), USA.
- Proposal review panelist for the European Research Council (ERC), European Union.
- Proposal review panelist for the Agence Nationale de la Recherche (ANR), France.
- Proposal review panelist for the Natural Sciences and Engineering Research Council (NSERC), Canada.
- Proposal review panelist for the Research Council (TRC), Sultanate of Oman.
- Proposal review panelist for the National Science Centre (NSC), Poland.
- Proposal review panelist for the Netherlands Science Foundations (NWO and STW), Netherlands.
- Proposal review panelist for the National Center of Science and Technology (NCST), Kazakhstan.
- Member of the panel on “cloud computing” as part of International Conference on Frontiers of Information Technology (FIT), 2012.

- Member of the panel on “green computing” as part of ACM/IEEE/IFIP International Conference on High Performance Computing and Simulation (HPCS), 2010.

**Conference Organizational Committee Memberships** (listed as top down hierarchy)

- General Co-Chair of the Scalable Solutions for GreenIT (SCALSOL) as part of the IEEE International Conference on Scalable Computing and Communications (SCALCOM), 2011.
- General Co-Chair of the Workshop on Scalable Optimization in Intelligent Networking (SCOPIN) as part of the IEEE International Conference on Network-Based Information Systems (NBIS), 2011.
- General Co-Chair of the Workshop on Optimization Issues in Energy Efficient Distributed Systems (OPTIM) as part of the ACM/IEEE/IFIP International Conference on High Performance Computing and Simulation (HPCS), 2010.
- General Co-Chair of the Workshop on GreenIT Evolutionary Computation as part of the ACM Genetic and Evolutionary Computation Conference (GECCO), 2011, 2012.
- Co-Chair of the Track on Metaheuristics and Green Computing as part of the International Conference on Metaheuristics and Naturally Inspired Computing (META), 2010, 2011, 2012.
- Co-Chair of the Track on High Performance Green Computing as part of the International Conference on Parallel, Distributed, Grid and Cloud Computing for Engineering (PARENG), 2011.
- Member of the Steering Committee of the IEEE International Conference on Scalable Computing and Communications, 2014, 2015.
- Member of the Steering Committee of the IEEE/ACM International Conference on Green Computing and Communications (GreenCom), 2011, 2012, 2013.
- Member of the Steering Committee of the International Conference on Eco-Friendly Computing and Communication Systems (ICECCS), 2014, 2015.
- Member of the Steering Committee of the IEEE International Conference on Frontiers of Information Technology (FIT), 2016.
- Member of the Organizing Committee of the International Conference on Computational and Systems Biology (ICCSB), 2010.
- Member of the Advisory Board of the European Conference on Modeling and Simulation (ECMS), 2011, 2012.
- Member of the International Advisory Committee of the International Conference on Advanced Computing and Communication Systems (ICACCS), 2013.
- Member of the International Advisory Committee of the International IT Summit Confluence, 2012.
- Technical Program Committee Co-Chair of the IEEE International Conference on Data Science and Data Intensive Systems (DSDIS), 2015.
- Technical Program Committee Co-Chair of the IEEE International Conference on Cloud Networking (CloudNet), 2014.
- Technical Program Committee Co-Chair of the ACM/IEEE International Conference on Frontiers of Information Technology (FIT), 2011, 2012, 2013, 2014, 2015.
- Technical Program Committee Vice Chair of the IEEE/ACM International Conference on Green Computing and Communications (GreenCom), 2010.
- Technical Program Committee Co-Chair of the IEEE International Conference on P2P, Parallel, Grid, Cloud and Internet Computing (3PGCIC), 2011.
- Technical Program Committee Co-Chair of the IEEE International Conference on Smart Grid and Home (SGH), 2011.
- Technical Program Committee Vice Chair of the IEEE International Conference on Big Data and Cloud Computing (BdCloud), 2014.
- Technical Program Committee Vice Chair of the IEEE International Conference on Contemporary Computing (IC3), 2016.
- Technical Program Committee Vice Chair of the IEEE International Conference on Cloud Computing Technology and Science (CloudCom), 2012.
- Technical Program Committee Vice Chair of the IEEE International Conference on Data Science and Systems (DASS), 2016.

- Technical Program Committee Vice Chair of the IEEE International Conference on Sustainable Computing and Communications (SustainComm), 2015.
- Track Chair of the IEEE International Conference on Network-Based Information Systems (NBIS), 2011.
- Track Co-Chair of the International Conference on Intelligent Networking and Collaboration Systems (INCoS), 2017.
- Workshop Chair of the 19th IEEE Conference on High Performance Computing and Communications (HPCC), 2017.
- Workshop Co-Chair of the IEEE International Conference on Scalable Computing and Communications (SCALCOM), 2011.
- Proceedings Chair of the IEEE/ACM International Conference on Utility and Cloud Computing (UCC), 2016.
- Industrial Co-Chair of the ACM/IEEE International Conference on Frontiers of Information Technology (FIT), 2010.

### **Conference Program Committee Memberships** (listed alphabetically)

- ACM Cloud and Autonomic Computing Conference (CAC), 2013.
- ACM/IEEE International Conference on Big Data Science, Engineering and Applications (BDSEA), 2016.
- ACM Workshop on Energy Efficient High Performance Parallel and Distributed Computing (EEHPDC), 2013.
- ACS/IEEE International Conference on Computer Systems and Applications (AICCSA), 2010.
- Asian Conference on Intelligent Information and Database Systems (ACIIDS), 2014.
- IEEE Consumer Communication and Networking Conference (CCNC), 2009, 2010, 2011, 2012, 2013, 2014.
- IEEE Global Communications Conference (GLOBECOM), 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016.
- IEEE International Conference on Advanced Cloud and Big Data (ICCD), 2013, 2014.
- IEEE International Conference on Advances in Cloud Computing (ACC), 2012.
- IEEE International Conference on Advances in Computing, Communications, and Informatics (ICACCI), 2014.
- IEEE International Symposium on Big Data Security on Cloud (BigDataSecurity), 2015, 2016.
- IEEE International Conference on Cloud and Service Computing (CSC), 2011, 2012, 2013.
- IEEE/ACM International Conference on Cloud and Utility Computing (UCC), 2015, 2016.
- IEEE International Conference on Communication Systems and Network Technologies (CSNT), 2014.
- IEEE International Conference on Communications (ICC), 2011, 2012, 2013, 2014, 2015, 2016, 2017.
- IEEE International Conference on Communications and Network Security (CNS), 2015.
- IEEE International Conference on Computer Communications (INFOCOM), 2012.
- IEEE International Conference on Computer Communications and Networks (ICCCN), 2014.
- IEEE International Conference on Computer Science and its Applications (CIIA), 2013.
- IEEE International Conference on Computers, Software and Applications (COMPSAC), 2016.
- IEEE International Conference on Contemporary Computing (IC3), 2012, 2013, 2014, 2015.
- IEEE International Conference on Cyber-enabled Distributed Computing and Knowledge Discovery (CyberC), 2015.
- IEEE International Conference on Network Softwarization (NetSoft), 2015.
- IEEE International Conference on Future Information Technology (FutureTech), 2011.
- IEEE/ACM International Conference on High Performance Computing (HiPC), 2011.
- IEEE International Conference on Intelligent Data and Security (IDS), 2016.
- IEEE International Conference on P2P, Parallel, Grid, Cloud and Internet Computing (3PGCIC), 2012.
- IEEE International Conference on Parallel and Distributed Systems (ICPADS), 2016.
- IEEE International Conference on Parallel Processing (ICPP), 2015.
- IEEE International Conference on Pervasive Computing and Communications (PerCom), 2018.
- IEEE International Conference on Systems, Man, and Cybernetics (SMC), 2013, 2014, 2015.
- IEEE International Conference on Wireless Communications, Networking and Information Security (WCNIS), 2010.
- IEEE International Green and Sustainable Computing Conference (IGSC), 2016.
- IEEE International Parallel and Distributed Processing Symposium (IPDPS), 2011, 2012, 2013, 2014, 2015, 2016.
- IEEE International Performance Computing and Communications Conference (IPCCC), 2012, 2013, 2014.
- IEEE/ACM International Symposium on Cluster, Cloud, and Grid Computing (CCGrid), 2012.
- IEEE International Symposium on Computer Architecture and High Performance Computing (SBAC-PAD), 2012.



- IEEE International Symposium on High Performance and Smart Computing (HPSC), 2015, 2016.
- IEEE International Symposium on Multimedia (ISM), 2007.
- IEEE International Symposium on Parallel and Distributed Computing (ISPDC), 2014, 2015, 2016.
- IEEE International Symposium on Programming and Systems (ISPS), 2011, 2013.
- IEEE International Symposium on Signal Processing and Information Technology (ISSPIT), 2014.
- IEEE International Workshop on Data Center Performance (DCPerf), 2012, 2013, 2014, 2015, 2016, 2017.
- IEEE International Workshop on Digital Computing Infrastructure and Applications (DCIA), 2010, 2011, 2012.
- IEEE International Workshop on Internet of Things and Internet of Services: Cyber-Physical Systems (IoT-IoS), 2010.
- IEEE International Workshop on IT Converged Services and Applications (ITCSA), 2011.
- IEEE International Workshop on Security in e-Science and e-Research (ISSR), 2011, 2012, 2013, 2014.
- IEEE International Workshop on Wireless and Internet Services (WiSe), 2010, 2012.
- IEEE International Workshop Towards Smart Communications and Network technologies applied on Autonomous Systems (SaCoNAS), 2010.
- IEEE Wireless Communications and Networking Conference (WCNC), 2013.
- IEEE Vehicle Power and Propulsion Conference (VPPC), 2015.
- IFIP International Conference on Network and Parallel Computing (NPC), 2013.
- IFIP International Conference on New Technologies, Mobility and Security (NTMS), 2011.
- International Conference on Advances in Information Technology (IAIT), 2015.
- International Conference on Cloud Computing Technologies and Applications (CLOUDTECH), 2015.
- International Conference on Cloud and Green Computing (CGC), 2013.
- International Conference on Communication Technology (ICCT), 2006.
- International Conference on Complex Distributed Systems (CODS), 2010, 2011.
- International Conference on Computational Intelligence (ICCI), 2005.
- International Conference on Computing, Networking and Communications (ICNC), 2012, 2013.
- International Conference on Emerging Ubiquitous Systems and Pervasive Networks (EUSPN), 2013, 2014.
- International Conference on ICTs for Disaster Management (ICT-DM), 2014.
- International Conference on ICT as Key Technology for the Fight against Global Warming (ICT-GLOW), 2011, 2012.
- International Conference on Innovative Mobile and Internet Services in Ubiquitous Computing (IMIS), 2013.
- International Conference on Internet Engineering (ICIE), 2006.
- International Conference on Model and Data Engineering (MEDI), 2014.
- International Conference on Multimedia and Ubiquitous Engineering (MUE), 2008, 2009.
- International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA), 2006, 2007, 2008, 2009, 2010.
- International Conference on Parallel and Distributed Systems (PDS), 2005.
- International Symposium on Security and Multimodality in Pervasive Environments (SMPE), 2010.
- International Symposium on u- and e- Service, Science and Technology (UNESST), 2008.
- International Workshop on Trust, Security and Privacy for Big Data (TrustData), 2013.
- Workshop on Collaboration in Virtual Environments (CoVE), 2012.

### **Refereeing** (listed alphabetically)

- ACM Computing Surveys.
- ACM Journal on Emerging Technologies in Computing Systems.
- ACM Transactions on Storage.
- ACM Transactions on Modeling and Computer Simulation.
- Advances in Information Sciences and Service Sciences.
- AIP/IEEE Computing in Science and Engineering.
- Computer Networks.

- Computers and Mathematics.
- Concurrency and Computation: Practice and Experience.
- CRC Press Book Series.
- Elsevier Book Series.
- Future Generation Computer Systems.
- IEEE Computer.
- IEEE Communications Letters.
- IEEE Distributed Systems Online.
- IEEE Systems Journal.
- IEEE Sensors Journal.
- IEEE Transactions on Circuits and Systems for Video Technology.
- IEEE Transactions on Cloud Computing.
- IEEE Transactions on Communications.
- IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems.
- IEEE Transactions on Computers.
- IEEE Transactions on Dependable and Secure Computing.
- IEEE Transactions on Emerging Topics in Computing.
- IEEE/ACM Transactions on Networking.
- IEEE Transactions on Parallel and Distributed Systems.
- IEEE Transactions on Pattern Analysis and Machine Intelligence.
- IET Book Series.
- International Journal of Computers and their Applications.
- International Journal of Grid and High-Performance Computing
- International Journal of Parallel Programming.
- Journal of Cloud Computing.
- Journal of Heuristics.
- Journal of Internet Services and Applications.
- Journal of Network and Computer Applications.
- Journal of Parallel and Distributed Computing.
- Journal of Signal Processing Systems.
- Journal of Supercomputing.
- Nature.
- Pervasive and Mobile Computing.
- Optical Engineering.
- Recent Patents on Computer Science.
- Sensors.
- Software: Practice and Experience.
- Sustainable Computing.
- Telematics and Informatics.
- Wiley Book Series.
- Wireless Communications and Mobile Computing.

**University/College/Department Service** (reverse chronology on the end date)

- North Dakota University System Task Force on Cybersecurity, Member, 2015 – 2016.
- NDSU Advisor Board for Student Affairs, Member, 2015 – 2016.
- NDSU Organization of Pakistani Students, Faculty Advisor, 2014 – 2016.
  - Recipient of the 2014/2015 Student Organization of the Year Award
  - Recipient of the 2014/2015 Best Cultural/Diversity Program of the Year Award
  - The Organization President, S. O. Ahmed was the 2014/2015 Student Leader of the Year awardee

- NDSU Graduate Affiliated Status Committee, Member, 2015 – 2016.
- NDSU Graduate Council, Member, 2014 – 2016.
- NDSU Graduate School Appeal Committee, Member, 2015.
- NDSU Director of the Office of Institutional Research, Member, 2015.
- Program Review Committee, Member, 2014 – 2015.
- CoE Grant Coordinator Search Committee, Member, 2014.
- NDSU Provost Search Committee, Member, 2013 – 2014.
- ECE Computer Engineering Curriculum Committee, Chair, 2013 – 2014.
- ECE Research Web Portal, Maintainer, 2009 – 2013.
- ECE Chair Search Committee, Member, 2010 – 2013.
- ECE Faculty Search Committee, Member, 2011 – 2012.

### **Community Service**

- AccessEngineering Leadership Team, Disabilities, Opportunities, Internetworking, and Technology (DO-IT), University of Washington, Member, 2015 – 2016.
- Community Advisory Board of Prairie Public, (Public Broadcasting Service (PBS)), Member, 2013 – 2016.