

JUNAID AHMED KHAN

Date of Birth: 27-06-1988

Nationality: Pakistani

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RESEARCH INTERESTS

Information/Content Centric Networking (CCN), Vehicular Networks, Internet of Things (IoTs), Fog Networking, Complex/Social Network Analysis.

EDUCATION

Sept 2013-Aug 2016 **UNIVERSITY PARIS-EST MARNE-LA-VALLEE**

Marne-la-Vallée, France

Laboratoire d'Informatique Gaspard Monge - LIGM

Ph.D Computer Science

Thesis: Large scale data collection and storage using smart vehicles: An information-centric approach

Sept 2010- Sept 2013 **NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY - NUST**

Islamabad, Pakistan

School of Electrical Engineering and Computer Science - SEECS

MS Electrical Engineering (Telecom and Computer Networks)

Thesis: Modeling and evaluation of energy storage capacity for harvesting enabled sensors

July 2005-June 2009 **NATIONAL UNIVERSITY OF COMPUTER & EMERGING SCIENCES - NUCES Islamabad, Pakistan**

BS Telecommunication Engineering

RESEARCH EXPERIENCE

Oct 2016- Present **INSTITUT NATIONAL DES SCIENCES APPLIQUÉES - INSA Lyon, France**

Center of Innovation in Telecommunications and Integration of Service – CITI lab

Post-doctoral Researcher: *INRIA URBANET Team*

Major tasks:

- Project CLOTHO: Energy-efficient Self-organization in Internet of Things

June 2016- Oct 2016 **University of California Santa Cruz, CA, USA**

Baskin School of Engineering

Research Fellow: *Computer Engineering Department*

Major tasks:

- Proposing game theoretic based approaches for collaborative cache management and content offloading at social-aware mobile fogs in Content Centric Networks

Jan 2016 – Aug 2016 **University of La Rochelle, La Rochelle, France**

Researcher: Laboratoire Informatique, Image, Interaction -L3i

Major tasks:

- Developing algorithms for autonomous decision making for connected vehicles as a step towards self-driving vehicles

- Proposition of socially-aware content storage and distribution schemes using Information-Centric Networking (ICN)

Aug 2013-Dec 2015 **University Paris-Est Marne-la-Vallée, France**

Doctorate Researcher: *Laboratoire d'Informatique Gaspard Monge – LIGM*

Major tasks:

- Using Information Centric Networking for content distribution and sharing in Vehicular Networks (Collaboration with University of La Rochelle, France).
- Distributed urban sensing data collection/retrieval by recruiting smart vehicles employing V2V communications in Vehicular Networks.

Project:

- IETA2 11037 CarCoDe: European Project for the development of platforms for smart car-to-car content delivery in smart cities.

Dec 2013- Dec 2015 **University of La Rochelle, La Rochelle, France**

Invited Researcher: *Laboratoire Informatique, Image, Interaction -L3i*

Sep 2011-May 2013 **School of Electrical Engineering and Computer Science, National University of Science and Technology – SEecs NUST, Islamabad, Pakistan**

Research Assistant: *Wireless and Secure Networks Laboratory - WiSNet*

Major Tasks:

- Energy Efficient and reliable data delivery in Wireless Sensor Networks(WSNs)/Internet of Things (IoTs)
- Energy Provisioning in WSNs/IoTs using renewable energy sources; solar power and wireless energy transference.

PUBLICATIONS

Journals Published:

- Junaid Ahmed Khan and Yacine Ghamri-Doudane, “**SAVING: Socially Aware Vehicular Information-centric Networking**” *IEEE Communications Magazine*, Aug 2016.
- Junaid Ahmed Khan, Yacine Ghamri-Doudane, Dmitri Botvich, “**Autonomous Identification and Optimal Selection of Popular Smart Vehicles for Urban Sensing - An Information-centric Approach**” *IEEE Transactions on Vehicular Technology*, 2016.
- Junaid Ahmed Khan, Hassaan Khaliq Qureshi, Adnan Iqbal, “**Energy Management in Wireless Sensor Networks: A Survey**”, *Journal of Computers and Electrical Engineering*, 2014

Journals Submitted:

- Junaid Ahmed Khan and Yacine Ghamri-Doudane,, “**An ICN Enabled Optimal Recruitment of Best Candidate Vehicles for Social-aware Data Collection in Urban Environment**” *IEEE Transactions on Vehicular Technology*, 2017.
- Junaid Ahmed Khan and Yacine Ghamri-Doudane, “**Social Welfare Optimization Game to Find and Recruit Vehicles for Content Caching in CCNs**” *IEEE Transactions on Mobile Computing*, 2017.
- Junaid Ahmed Khan, Yacine Ghamri-Doudane and Cedric Westphal, “**IS-Fog: Information-centric Social-aware Fog Networking for Internet of Everything (IoE)**” *IEEE Communications Magazine*, 2017.

Conferences Published:

- Junaid Ahmed Khan and Yacine Ghamri-Doudane, “**STRIVE: Socially-aware Three-tier Routing in Information-centric Vehicular Environment**”, *IEEE Globecom 2016*

- Junaid Ahmed Khan, Yacine Ghamri-Doudane, Dmitri Botvich, “**InfoRank: Information-Centric Autonomous Identification of Popular Smart Vehicles**”, *IEEE Vehicular Technology Conference (IEEE VTC Fall) 2015*.
- Junaid Ahmed Khan, and Yacine Ghamri-Doudane, “**CarRank: An Information-Centric Identification of Important Smart Vehicles for Urban Sensing**”, *14th IEEE International Symposium on Network Computing and Applications, IEEE NCA 2015*
- Junaid Ahmed Khan, Yacine Ghamri-Doudane, Dmitri Botvich, “**GRank - An Information-Centric Autonomous and Distributed Ranking of Popular Smart Vehicles**” *IEEE Globecom 2015*.
- Junaid Ahmed Khan, Yacine Ghamri-Doudane, Ali El Masri, “**Towards the Ranking of Important Smart Vehicles in VANETs - An Information-centric Approach**”, *IEEE CFIP NOTERE 2015*.
- Junaid Ahmed Khan, Hassaan Khaliq Qureshi, Adnan Iqbal. “**TRW: An Energy Storage Capacity Model for Energy Harvesting Sensors in Wireless Sensor Networks**” *IEEE 25th Annual Symposium on Personal, Indoor and Mobile Radio Communications, (IEEE PIMRC 2014)*.
- Rehan Qayyum, Junaid Ahmed Khan, Adnan Iqbal. “**Improving Multipath Data Delivery and Energy Efficiency in Few Disjoint Paths Scenario.**” *IFIP. IEEE Wireless Days (WD), 2012.*
 - IFIP Student travel grant winner

Conferences Submitted:

- Junaid Ahmed Khan, Cedric Westphal, Yacine Ghamri-Doudane, J. J. Garcia-Luna-Aceves “**Social-Aware Content Offloading in CCNs using Mobile Fogs: A Coalition Game Approach**”.
- Junaid Ahmed Khan, Cedric Westphal, Yacine Ghamri-Doudane, J. J. Garcia-Luna-Aceves “**STOCK: A Game of Edge vs Core Caching? Offload Content at Socially-aware Mobile Fogs**”.
- Junaid Ahmed Khan, Cedric Westphal, Yacine Ghamri-Doudane, “**A Content-based Betweenness centrality scheme for optimal content placement in Information-centric Fog Networks**”.

Workshops without proceedings:

- Junaid Ahmed Khan and Yacine Ghamri-Doudane, “**CarRank: An Information-Centric Distributed Ranking Algorithm for Popular Smart Vehicles** , *7th REVE, EURECOM Sophia Antipolis, France 19-20, March 2015*
- Junaid Ahmed Khan and Yacine Ghamri-Doudane, “**Autonomous Identification and Optimal Selection of Popular Smart Vehicles for Urban Sensing- An Information-centric Approach**”, *8th REVE, UTC Compiègne, France, 10-11, March 2016*
- Junaid Ahmed Khan and Yacine Ghamri-Doudane, “**STRIVE: Socially-aware Three-tier Routing in Information-centric Vehicular Environment**”, *1st Smart City Day, INRIA Sophia Antipolis, France, 11 January 2017*
- Junaid Ahmed Khan and Yacine Ghamri-Doudane, “**SAVING: Socially Aware Vehicular Information-centric Networking**” *Journées non-thématiques RESCOM, INRIA Sophia Antipolis, France, 12-13 January 2017.*

TEACHING EXPERIENCE

- Oct 2016 – Present **Institut National Des Sciences Appliquées - INSA Lyon, France**
Telecommunications Department
Courses: *Advanced Computer Networks, Network Architecture*
- Jan 2016- Aug 2016 **University of La Rochelle, La Rochelle, France**
Courses: *Computer Networks, Network Security, Database Management*

PROJECTS

French National Project DGA CLOTHO: Post-doctoral Researcher

- Designing and Development of energy-efficient self organization of energy scarce object in the context of Internet of Things (IoTs).

- Distributed data collection from sensors with ultra-low duty cycles using LoRa/Sigfox.

European Project- IETA2 11037 CarCoDe: Doctorate Researcher

- Designing and developing algorithms and protocols for efficient content sharing and synchronizing between cars using smart vehicles by utilizing V2V communication in a smarter city environment.
- Development of android-based in-vehicle platform “City Eyes” for urban sensing using smart vehicles

Final Year Project: BS Telecommunications Engineering

- Design of a power aware wireless sensor node using Texas Instruments CC2431 kit
- Deployment of an automatic meter reading system using ZigBee (IEEE 802.15.4) enabled MicaZ sensor nodes

INDUSTRY EXPERIENCE

Feb 2010-Mar 2011 **National Telecommunication Corporation (NTC) HQs, Islamabad, Pakistan**
NIP Trainee at Network and System Engineering Department

Key responsibilities:

- Involved in designing of the technical specifications, verification and processing of PAT documents of different equipment for different vendors.
- Monitoring of the NMS of ZTE ZXJ10 Switches located at remote locations.

Major Projects:

- Installation of 5500 DSLAMs by M/S COMSYS at countrywide NTC sites.
- Installation of MSAG at different sites for NTC by M/S Huawei
- Testing and evaluation of ZXJ10 switch provided by M/S ZTE.

July 2008-Sept 2008 **Pakistan Telecommunication Company Limited (PTCL), Islamabad, Pakistan**
Internship in the Switching Department

- **Worked in the OMC of EWSD (Siemens) Switch.**

TRAININGS & CERTIFICATIONS

14-18 July 2014 **International Summer School on Complex Networks**
 Bertinoro, Italy

Oct 2009-Jan 2010 **Cisco Certified Network Associate (CCNA)**
CSCO ID: CSCO12078338
 Cisco Regional Academy IQRA University, Islamabad, Pakistan

MAJOR COURSES

- **Communication & Networks:** Wireless Communication and Networks, Wireless Ad-Hoc and Sensor Networks, Advanced Computer Networks, Network Performance analysis, Advanced Digital Communication, Information Theory & Coding, Data Communication, Satellite Communications, Digital Signal Processing, Telecommunication Transmission and Switching Systems.
- **Basic System Engineering:** Probability & Stochastic Process, Multivariable Calculus, Linear Algebra & Differential Equations and Electromagnetic Theory.
- **Hardware:** Electrical & Electronic Circuits, Digital Logic Design, Computer Architecture, Micro Processor Interfacing, Wave Propagation & Antenna Theory, Microwave Engineering, Feedback Control Systems.
- **Computer Science (Theory):** Discrete Optimization, Chaos Theory, Analytic combinatorics, Performance Modeling & Simulation, Game Theory, Machine Learning, Statistical Data (Big-Data) Analysis,

- **Computer Science (Programming):** Object Oriented in C++, Data Structures and Algorithms, Assembly Language, Socket Programming, Operating Systems.

TECHNICAL SKILLS

- NS2/NS3, Visual C/C++, Java, Android, PHP MySQL, Python, OPNET, Omnet++, MATLAB, R, VERILOG, PSPICE, Multisim, AutoCAD, GNS3, Wireshark, Packet Tracer, LATEX, Verilog, TinyOS (NesC), LINUX, MICROWIND DSCH, MASM.

PROFESSIONAL ACTIVITIES

- Co-supervisor (50%) for the Ph.D thesis of Mr. Bouziane Brik at University of La Rochelle, France
- Co-supervisor for the masters thesis of Ms. Rim-el-Fahem (*graduated September 2015 SUPCOM, Tunis Tunisia*)
- Reviewer: IEEE Transactions on Vehicular Technology, IEEE Transactions on Intelligent Transportations Systems, Elsevier Journal of Computers of Electrical Engineering, Annals of Telecommunications Journal, IEEE ICC'14-17 WCNC'14-16 Globecom'14-16 VTC Spring'14, VTC Fall'14,15 VTC Spring'15, LCN'14, IM'15; SPECTS'14, ITC'14, MILCOM'14, IFIP WD'13-17.
- Participated in 3rd annual JIDAP'13, 27-28 November'13, Université de La Rochelle, France
- Participated in 6th Journée des Doctorants, 4th June'14, Univeristé Paris-Est Marne-la-Vallée, France
- Member IEEE (Institute of Electrical and Electronics Engineers) and VTS (Vehicular Technology Society)
- Member of organizing committee NASCON at NUCES-FAST Islamabad, Pakistan

REFERENCES

- Yacine Ghamri-Doudane
Professor (Thesis Supervisor and Director L3i Lab),
University of La Rochelle, La Rochelle, France
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- Cedric Westphal
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University of California, Santa Cruz, CA, USA
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- Jean-Marc Ogier
Professor and Rector,
University of La Rochelle, La Rochelle, France
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