

# Muzammil Hussain

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## Highlights

- PhD in Computer Science from Oxford University.
- Work experience at Samsung Research and Xerox PARC.
- Senior Member, IEEE and ACM.
- Expertise in internet-of-things, wireless personal access networks (WPANs), recommender systems, localization algorithms, ubiquitous computing, context-aware/location-aware computing, indoor localization, cyber-physical systems.
- Conversant with
  - *IoT* protocols like CoAP, MQTT, LWM2M, 6LoWPAN.
  - *Distributed Computing* technologies like Hadoop, Spark, Kafka, Zookeeper, Solr, MongoDB, Cassandra.
  - *estimation* techniques like maximum likelihood, Kalman filters, particle filters.
  - *machine learning* techniques like support-vector machines, Bayesian inference, logistic regression.
- Programming experience for a variety of embedded hardware and robot platforms, and network simulations in C++, Java, MATLAB and Python.
- Familiar with statistical analysis using R and MATLAB.

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## Education

- 2008–2013 **D.Phil, Computer Science**, *University of Oxford*, Oxford, UK.  
**Thesis Topic:** Multi-hop Localization in Cluttered Environments.
- 2005–2008 **M.S. Computer Science and Engineering**, *University at Buffalo, SUNY*, Buffalo, NY, USA, GPA 3.8/4.0.
- 1998–2002 **B.E., Computer Science and Engineering**, *B.M.S. College of Engineering*, Bangalore, India, 76% First Class with Distinction.

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## Employment

### Industrial

- September 2013–present **Chief Engineer**, *Samsung Research Institute (SRI) Delhi*, Noida, U.P., India.
  - Technical Lead on data analytics/search for Samsung Smart TV service.
  - Management of academic/research collaborations with premier Indian universities. Established industry course on Samsung Tizen platform at IIT Delhi and IIT Kanpur, with negotiations with IIT Roorkee ongoing.
  - Project Lead on research projects on wireless personal area networks (802.15.7) and recommendation systems. Output was 1 research publication and 1 pending patent application.

- July 2012–Feb 2013 **Research Intern**, *Palo Alto Research Center (PARC)*, Xerox, Palo Alto, CA. Conducted research on the quality of Location Based Social Network (LBSN) data, collaborative filtering, augmenting GPS traces with LBSN data. Output was 1 US patent and 1 publication in prestigious AAAI conference.
- 2003–2005 **Software Engineer**, *Cambridge Silicon Radio (CSR)*, Bangalore, India. Responsible for the implementation and testing of the Common Access Stratum (CAS) of a dual mode GSM/GPRS-WCDMA cellular protocol stack.
- Academic**
- 2010–2011 **Teaching Assistant**, *Software Engineering Programme, Dept. of Computer Science*, University of Oxford, Oxford, UK. Designed and organized practical sessions for the Mobile and Sensor Networks (MOB), the Database Systems (DAT) and the Software Product Lines (SPL) courses
- 2008–2011 **Laboratory Demonstrator**, *Dept. of Computer Science*, University of Oxford. Assisted during the lab sessions for the Computer Graphics (CG), Imperative Programming (IP), Design and Analysis of Algorithms (DAA) courses
- Jan 2006–May 2008 **Teaching Assistant**, *Dept. of Computer Science and Engineering*, University at Buffalo, SUNY, Buffalo, NY. Designed and organized recitations/lab sessions for CSE191 (propositional and predicate logic, proof techniques), CSE116 (abstract datatypes(ADT) and object-oriented methodology) courses
- Summer 2006,2007 **Research Assistant**, *Dept. of Computer Science and Engineering*, University at Buffalo, SUNY, Buffalo, NY. Conducted research on CROCHET, a transactional framework for programming wireless sensor/actor networks based on optimistic concurrency control under Dr. Murat Demirbas
- Other**
- Jun 2010–Jun 2012 **Webmaster**, *Oxford University Squash Racquet Club*, University of Oxford.
- Jan 2011–Dec 2011 **Webmaster and IT Officer**, *Oxford Indian Society*, University of Oxford.

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## Selected Publications

### Patents

- [P1] **M. Hussain**, R. Zhang, O. Brdiczka, and R. Zhou, “System and apparatus for measuring application-specific consistency of check-in-based user location data streams,” Patent US-20 150 039 672, 2013.

### Papers

- [C1] A. Kumar, N. Kumar, **M. Hussain**, S. Chaudhury, and S. Agarwal, “Semantic clustering-based cross-domain recommendation,” *IEEE Symposium Series on Computational Intelligence (SSCI)*, 2014.
- [C2] **M. Hussain** and N. Trigoni, “Effect of Clutter Topology on Multi-Hop Localizer Placement,” in *12th International Symposium on Modeling and Optimization in Mobile, Ad Hoc, and Wireless Networks (WiOpt)*, 2014.
- [C3] E. Bart, R. Zhang, and **M. Hussain**, “Where Would You Go This Weekend? Time-Dependent Prediction of User Activity Using Social Network Data,” *International AAAI Conference on Weblogs and Social Media (ICWSM)*, vol. 13, 2013.
- [C4] **M. Hussain** and N. Trigoni, “Adaptive Node Placement for Improving Localization Accuracy in Clutter-Prone Environments,” in *IEEE Wireless Communications and Networking Conference(WCNC)*, 2013.

- [C5] **M. Hussain**, Y. Ayatar, N. Trigoni, and A. Markham, “Characterization of Non-Line-of-Sight (NLOS) Bias via Analysis of Clutter Topology,” in *Proceedings of IEEE/ION Position Location and Navigation System (PLANS) Conference*, 2012.
- [C6] S. Nawaz, **M. Hussain**, S. Watson, N. Trigoni, and P. Green, “An underwater robotic network for monitoring nuclear waste storage pools,” *Sensor Systems and Software*, pp. 236–255, 2010.
- [C7] M. Demirbas, O. Soysal, and **M. Hussain**, “A singlehop collaborative feedback primitive for wireless sensor networks,” in *INFOCOM 2008. The 27th Conference on Computer Communications. IEEE*. IEEE, 2008, pp. 2047–2055.
- [C8] M. Demirbas, O. Soysal, and **M. Hussain**, “Transact: A transactional framework for programming wireless sensor/actor networks,” in *2008 International Conference on Information Processing in Sensor Networks*. IEEE, 2008, pp. 295–306.

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## Skills

Distributed Computing	Hadoop, Spark, Kafka, Zookeeper, Solr
Languages	C, C++, nesC, Java, Prolog, Perl, Scala
Tools	MATLAB, R, OpenCV, UsarSim UT2004, CVS, SVN, Microsoft Office, Latex
OS Platforms	TinyOS, Contiki, Linux, x86
Hardware Platforms	Mica2, Telosb, MIT-Cricket motes, iRobot Create

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## Awards and Honors

- Elevated to Senior Member of IEEE and ACM.
- Member, **Tau Beta Pi** and **Eta Kappa Nu** honor societies
- **EPSRC studentship** (2008-2012) for conducting doctoral studies at University of Oxford 2008-2012
- **Santander Travel Award 2011-2012** for covering travel expenses to Porto, Portugal for research collaboration in underwater sensor networks
- **Graduate Tuition Scholarship**, Dept. of CSE., SUNY Buffalo (Jan 2006 to May 2008)
- **SUNY Teaching Assistant Retention Bonus**(\$1250), Spring 2007
- Ranked in the **top 0.1 percentile** among 60,000 examinees in state Entrance Examinations, India, 1998
- Travel Awards for attending IEEE BroadNets 2006(\$800) and IEEE WOWMOM 2006(\$300)

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## Memberships, Affiliations and Activities

- IEEE and ACM.
- TPC member for IEEE ANTS 2016, IEEE ICCS 2016, SENSORNETS 2015
- Reviewer for IEEE Transactions on Mobile Computing, Computer Networks(CoMNet) Journal, WoWMoM 2008, OPDIS 2008, ICC 2008
- 2010-2012 Editorial Board, Inspire Magazine, Dept. of Computer Science, University of Oxford

- 2011-2012 General Purposes Committee, Wolfson College, Oxford
- 2010-2012 Committee, Oxford University Squash Raquest Club
- 2011 Committee, Oxford Indian Society