Amarjeet Singh

CONTACT INFORMATION	B-302, Academic Block, Web: http://www.iiitd.edu.in/~amarjeet Okhla Industrial Estate, Phase-III, New Delhi 110020, India Email: amarjeet@iiitd.ac.in

EDUCATION

University of California Los Angeles, California USA
Ph.D., Electrical Engineering   2009
- Advisor: Prof. William J. Kaiser
- Dissertation Topic: Efficient sensing using mobile robots - From theoretical foundations to in-field operation and validation.

M.S., Electrical Engineering (GPA: 3.84/4.0)   2007
- Dissertation Topic: Iterative experiment Design for Environment Application (IDEA): Algorithms and Systems for In Field Adaptation in Aquatic Applications

Indian Institute of Technology Delhi, New Delhi India
B.S., Electrical Engineering (GPA: 8.46/10),   2002
- Final Project: SoC synthesis with automated hardware software interface generation

HONORS AND AWARDS

- Invited to be a member of HISP India Governing Council (2013)
- IBM Faculty Award, 2011 (One of the three faculty awarded in India)
- D.N. Chorofas Foundation Award 2009 for applied research with long-range implications
- Dissertation Year Fellowship, UCLA, 2008
- Edward K. Rice Outstanding MS student award, UCLA Engineering, 2007

WORK EXPERIENCE

Mobile and Ubiquitous Computing Group, IIIT-Delhi
Assistant Professor   December, 2009 - present
Center for Embedded Networked Sensing (CENS), Los Angeles, California USA
Graduate Research Scholar   January, 2005 - June 2009
Tejas Networks India Pvt. Limited, Bangalore, Karnataka India
Senior Research Engineer   May, 2002 - November 2004

TEACHING CONTRIBUTION

- Led the design and teaching of three courses titled "Systems Management", "Embedded Systems" and "Integrated Health Information Architectures"
- Institute acknowledgment for excellent teaching for majority of the courses taught so far
- Developed video content (with help from students) for Systems Management course. Offered the course through locally hosted EdX platform in Monsoon Semester 2013.

SPONSORED RESEARCH (ONGOING)

1. HumanSense: Towards context aware sensing, inference and actuation for applications in Energy and Healthcare, Joint project with IGIT (Delhi) and NIIT University (Neemrana), funded by IT Research Academy, DEITy (PI), 3 years starting December 2013 (Approx. INR 2.45 crores)
2. Pervasive Sensing and Computing Technologies for Energy and Water Sustainability in Buildings, Joint project with Prof. Mani Srivastava, UCLA and CDAC Chennai, DEITy and NSF (PI), 2 years starting April 2012 (Approx. INR 1.3 crores)
3. Design and Development of a Mobile Device Centric Environment for Healthcare Delivery, Joint project with PGI Chandigarh, funded by DEITy (co-PI), 3 years starting March 2013 (Approx. INR 47 Lakhs)
4. Development of distributed algorithms for incremental sensing and communication EMC Corporation (PI), 1 year starting September 2013 (9.6 Lakhs)

	5. Programmable System For Monitoring of Electrical Parameters and Intelligent Control of Electrical Appliances, Telecommunication Consultants India Limited (PI), Started November 2013 (INR 2.5 Lakhs) 6. Smart Electrical Energy Disaggregation using Machine Learning Approaches, Telecommunication Consultants India Limited (PI), Started November 2013 (INR 2.5 Lakhs)
SPONSORED RESEARCH (COMPLETED)	1. Seed money for development of **"** Networked programme for higher education, training and research in Health Information Management in South Asia", Norwegian Agency for Development Cooperation (PI), Completed March 2013, (Approx. INR 23 Lakhs) 2. Time and Presence Based Actuation**,** Telecommunication Consultants India Limited (PI), Completed February 2013 (INR 2 Lakhs) 3. Use of Cell Phone for Detecting and Controlling Infectious Diseases, National Geographic Society (co-PI), 1 year starting Feb 2012 (Approx. INR 9 Lakhs) 4. WebMAP- Web based Mobile Architecture and Programming, Nokia Global University Grant (co-PI), 1 year starting March 2012 (Approx. INR 13 Lakhs) 5. Intelligent Information Access on Low-end mobile phones, Microsoft Research India (co-PI), Completed July 2012 (INR 10 Lakhs)
CONSULTING ASSIGNMENTS	1. Personalized activity monitoring for shared spaces, Robert Bosch Engineering and Business Solutions Ltd, 6 months starting Nov 2013 2. Analyzing voice based services for farmers in rural India, Consulting project from Iffco Kisaan Sanchar Limited, Completed 2011 (PI)
JOURNAL PUBLICATIONS	1. Sen, R., Maurya, A., Raman B., **Singh, A.**, Mehta, R., Kalyanaraman, R., Road-RFSense: A Practical RF-Sensing Based Road Traffic Estimation System for Developing Regions, ACM Transactions on Sensor Networks (Accepted, 2013) 2. **Singh, A.**, Krause A., Guestrin C. and Kaiser, W. "Efficient informative sensing using multiple robots", Journal of Artificial Intelligence Research, 34 (707-755), 2009 3. Caron, D., Stauffer, B., Moorthi, S., **Singh, A.**, Batalin, M., Graham, G., Hansen, M., Kaiser, W., Das, J., Pereira, A., Dhariwal, A., Zhang, B., Oberg, C. and Sukhatme, G., "Macro- to fine-scale spatial and temporal distributions and dynamics of phytoplankton and their environmental driving forces in a small subalpine lake in southern California", USA. Journal of Limnology and Oceanography, 53(2333-2349), 2008 4. **Singh, A.**, Batalin, M., Stealey, M., Zhang, B., Dhariwal, A., Stauffer, B., Moorthi, S., Oberg, C., Pereira, A., Chen, W., Lam, Y., Caron, D., Hansen, M., Kaiser, W. and Sukhatme, G., Human assisted robotic team campaigns for aquatic monitoring. Journal of Field Robotics, 24(11-12), 2007
SELECTED CONFERENCE PUBLICATIONS	1. Gupta A., Thapar J., **Singh A.**, Singh P., Srinivasan V., Vardhan V., Simplifying and Improving Mobile Based Data Collection, Sixth International Conference on Information and Communications Technologies and Development: Notes - Volume 2, Cape Town, South Africa, 2013 2. Batra N., Gulati M., **Singh A.**, Srivastava M.B., "It's Different: Insights into home energy consumption in India" 5th ACM Workshop On Embedded Systems For Energy-Efficient Buildings (BuildSys), Rome, Italy, November 13-14, 2013

3. Batra N., Dutta H., **Singh A.**, "INDiC: Improved Non-Intrusive load monitoring using load Division and Calibration", 12th International Conference on Machine Learning and Applications (ICMLA'13), Miami, Florida, USA, Dec 4 –7, 2013

4. Asthana, S., Singh P., **Singh, A.**, "Accessing Designs of Interactive Voice Response Systems for Better Usability", 15th International Conference on Human-Computer Interaction (HCII), July, 2013, Las Vegas, USA

5. Arjunan P., Saha M., Gulati M., Batra N., **Singh A.**, Singh P., "SensorAct: Design and Implementation of Fine-grained Sensing and Control Sharing in Buildings", Poster at USENIX Symposium on Networked Systems Design and Implementation (NSDI), 2013

6. Arjunan, P., Batra, N., H. Choi, **Singh, A.,** Singh, P., and M. B. Srivastava. "SensorACT: A Privacy and Security Aware Federated Middleware for Building Management." In ACM Workshop on Embedded Sensing Systems For Energy-Efficiency In Buildings (BuildSys), November, 2012, Toronto, Canada

7. Garg S., **Singh A.**, Ramos F., "Learning Non-Stationary Space-Time Models for Environmental Monitoring", 26th Conference on Artificial Intelligence (AAAI), Special Track on Computational Sustainability and AI, 2012, July, 2012, Ontario, Canada

8. Yadav K., Naik V., **Singh A.**, Singh P., and Chandra U., "Low Energy and Sufficiently Accurate Localization for Non-Smartphones", IEEE MDM 2012, 13th International Conference on Mobile Data Management. July, 2012, Bengaluru, India.

9. Singh P., **Singh A.**, Lal S., and Naik V., "CVDMagic: A Mobile Based Study for CVD Risk Detection in Rural India", International conference on information and communication technologies and development (ICTD), pp 359-366, Atlanta, Georgia, March 12-15, 2012

10. **Singh, A.**, Ramos F., Durrant-Whyte H. and Kaiser, W. Modeling and decision making in spati-temporal processes for environmental surveillance, IEEE International Conference on Robotics and Automation (ICRA), 2010, Anchorage, Alaska

11. **Singh, A.**, Krause, A., and Kaiser, W., Nonmyopic Adaptive informative path planning for multiple robots, International Joint Conference on Artificial Intelligence (IJCAI), 2009

12. **Singh, A.**, Krause, A., Guestrin, C., Kaiser, W., Batalin, M., Efficient planning of informative paths for multiple robots. International Joint Conference on Artificial Intelligence (IJCAI), pp: 2204-2211, January 6-12, 2007, Hyderabad, India

13. McIntire, D., Ho, K., Yip, B., **Singh, A.**, Wu, W. and Kaiser, W., The Low Power Energy Aware Processing (LEAP) System. IPSN Track on Sensor Platform, Tools and Design Methods for Networked Embedded Systems (SPOTS), pp:449-457, April 19-21, 2006, Nashville, TN, USA (**Winner of Best Demo Award**)

FIELD DEPLOYMENTS	• Developing IIIT-Delhi as a smart campus with a living testbed – deployed and networked more than 200 smart electricity meters collecting data every 30 seconds; living deployment of ambient sensors (motion, temperature and light) in dorms and in the research wing; interface with access control system and HVAC system
	• Multiple home deployments high resolution energy and ambient data in India
	• Interactive Voice Response System: Working on deploying mobile phone based data collection and supporting voice interface for information awareness for National Rural Employment Guarantee Scheme (NREGS) in Gattu, Mehboobnagar, Andhra Pradesh.
	• Medical record Systems: Working in collaboration with an NGO Health Information Systems Programme (HISP) India integrating the openMRS based hospital systems across the state of Himachal Pradesh, with the state level DHIS2 based health information systems; Developed and deployed "Blood Bank Module" within openMRS at District Hospital in Shimla with HISP India; Developed "Billing module" within openMRS in

collaboration with an NGO Raxa, to be deployed in tribal areas of Chhatisgarh
- CVDMagic: Android based mobile application for early detection of Cardio-Vascular Disease. The application was developed using Sana Framework from MIT and deployed in rural areas of Punjab with our collaborator Electronic Health Point (EHP)
- Analysis of voice based services to farmers in India, in collaboration with Iffco Kisaan Sanchar Limited (IKSL)

STUDENT SUPERVISION
- PhD Students (Graduated): Kuldeep Yadav, January 2014 (Co-supervisor)
- PhD Students (Current) Pandarasamy Arjunan (since July 2011), Nipun Batra (since Jan 2012), IIITD - Primary superviser; Siddhartha Asthana (since July 2011) - Co-superviser;
- M.Tech.: Supratim Das (since December 2013), Apurv Mehra (since August 2013), Deepika (since August 2013), Milan Jain (since Jan 2013), Shailja Thakur (since 2013), IIITD; Sneihil Gopal NIT Kurukshetra - M.Tech. Thesis superviser (Graduated in July 2013); Thesis committee member for several M.Tech. students
- Guided multiple B.Tech. thesis, independent projects and undergraduate students interns

COLLABORATIONS
- Industrial Collaborators - IBM IRL, Bosch India, EMC Corporation India, Robert Bosch Engineering and Business Solutions, Telecommunication Consultants India Limited (TCIL), Microsoft Research India, Nokia Research
- Academic Collaborators: Prof. Mani Srivastava (UCLA), Dr. Aniket Mahanti (University of Auckland), Dr. Vivek Srinivasan (Stanford), Dr. Yuvraj Agarwal (Carnegie Mellon University)

RECENT SERVICE CONTRIBUTIONS
- Co-organizer E6 (Energy in Communication, Information, and Cyber-physical Systems) workshop at COMSNETS 2014
- TPC Member - eEnergy 2014, Buildsys 2013, XRCI Open 2014, Buildsys 2012, eEnergy 2013, ICDCN 2013, Dev 2013
- Reviewer - IEEE Journal for Internet Computing 2013, Elsevier Pervasive and Mobile Computing 2014
- Technical reviewer - CAMTech Innovation Awards 2013