

Manoj Gulati

Ph.D. Scholar ([Energy Group](#))

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RESEARCH INTERESTS	Energy Sustainability in Buildings, Signal Processing, Embedded System Design, Cyber Physical Systems.
EDUCATION	Ph.D. , <i>Electronics and Communication Engineering (Major GPA 8.3/10) 2013-Current</i> Indraprastha Institute of Information Technology, Delhi Advisor: Prof. Amarjeet Singh and Prof. Shobha Sundar Ram B.Tech. (Hons.) , <i>Electronics and Comm. Engineering (CPI 75%)</i> 2007-2011 Maharishi Dayanand University, Rohtak (Haryana)
HONOURS AND AWARDS	<ul style="list-style-type: none">• TCS Research Ph.D. fellowship (covering tuition fees and stipend for 4 years, support for participation in 1 International conference and 2 Indian conferences and contingency, starting January 2015)• Full travel and lodging grant by Microsoft Research India to present my work at PhD poster session at Microsoft Techvista - 2015.• Consultant and mentor for Embedded Systems Group at Hewlett Packard Educational Services, Noida during Summer 2012.• Web Based Wireless Grid Control (WBWGC) selected as fundamental design for WiNet(Wireless sensor network board), a platform for Advanced Embedded Systems Course at HP, taken by more than 2000 undergraduates every year.• BTP: Web Based Wireless Grid Control (WBWGC) awarded 1st position at university level in Maharishi Dayanand University, Rohtak along with Best Design Award in Kurukshetra University in 2011.
RESEARCH EXPERIENCE	Graduate Student July 2013-Present Advisor: Prof. Amarjeet Singh and Prof. Shobha Sundar Ram Research Associate Aug 2012-June 2013 Advisor: Prof. Amarjeet Singh Mobile and Ubiquitous Computing Group, IIIT Delhi Undergraduate Research Intern June 2010-Aug 2010 Embedded Systems Group, Hewlett Packard Educational Services, Noida
INDUSTRIAL EXPERIENCE	Consultant and Mentor June 2012-Aug 2012 Embedded Systems Group, Hewlett Packard Educational Services, Noida during Summer Training Program 2012 Embedded Design Engineer Aug 2011-June 2012 Indrion Technologies Pvt Ltd., Bangalore a startup in Environmental and Energy sensing Domain Embedded Design Engineer May 2011-July 2011 Embedded Systems Group, Hewlett Packard Educational Services, Noida
SKILLS	Programming Languages: Embedded C programming, C (with graphics and In-line assembly), Assembly language programming (x51, x85, x86 processors), Python (Numpy, Pandas), Verilog. EDA & Simulation Tools: Matlab, PSpice(MicroSim), LT-Spice, ISIS Proteus, Microcap, Advanced Design Systems(Agilent), Wireshark, AVR-GCC, WINAVR, GCC-MinGW, AVR-Studio, CV-AVR, GNU-Makefiles, GNU-Radio, Xilinx ISE, Cadsoft Eagle, Orcad Capture. Microcontroller Platforms: Atmel(AVR ATmega, AT-Tiny), Microchip PIC24F, NXP LPC1768. Hardware familiarity: Digital Sensors: TMP275(TI), APDS-9300(Avago), ISL29101(Intersil), OPT101(TI), TSL235R(TAOS) Modules: ENC28J60 Ethernet Controller, Zigbee(Xbee PRO), CC2500(TI), MRF24-

J40MA (802.15.4 Wireless Radio), MRF24WB0MB(Microchip 802.11 b/g Wi-Fi), RN-42(Bluetooth Roving networks), Graphic LCD(KS0108, T6963C).

Data Acquisition and computing Platforms: USRP N200(ETTUS-SDR), Red-pitaya, Raspberry Pi, MDO-4104(Tektronix), Spectrum Analyser N9000A CXA(Agilent).

PUBLICATIONS

Conference and Journal Papers

1. Pandarasamy Arjunan, Manaswi Saha, Haksoo Choi, **Manoj Gulati**, Amarjeet Singh, Pushpendra Singh, Mani B. Srivastava, SensorAct: A Decentralized and Scriptable Middleware for Smart Energy Buildings to appear as full paper at 12th IEEE International Conference on Ubiquitous Intelligence and Computing (**UIC 2015**), to be held in Beijing, China on 10-14 August, 2015.
2. **Manoj Gulati**, Shobha Sundar Ram, Amarjeet Singh, An In Depth Study into Using EMI Signatures for Appliance Identification, to appear as full paper at the 1st ACM International Conference on Embedded Systems For Energy-Efficient Buildings (**BuildSys 2014**), held in Memphis, USA on 5-6 November, 2014.
3. Nipun Batra, **Manoj Gulati**, Amarjeet Singh, Mani Srivastava, Its Different: Insights into home energy consumption in India to appear as full paper at the 5th ACM Workshop on Embedded Systems For Energy-Efficient Buildings (**BuildSys 2013**), held in Rome, Italy on 13-14 November, 2013.

Poster Papers

1. Nipun Batra, **Manoj Gulati**, Puneet Jain, Kamin Whitehouse, Amarjeet Singh, Bits and Watts: Improving energy disaggregation performance using power line communication modems , to appear as poster paper at the 1st ACM International Conference on Embedded Systems For Energy-Efficient Buildings (**BuildSys 2014**), held in Memphis, USA on 5-6 November, 2014.
2. Pandarasamy Arjunan, Manaswi Saha, **Manoj Gulati**, Nipun Batra, Amarjeet Singh, Pushpendra Singh, SensorAct: Design and Implementation of Fine-grained Sensing and Control Sharing in Building, to appear as poster and demo at 10th USENIX Symposium on Networked Systems Design and Implementation (**USENIX NSDI 2013**), April 2-5, 2013, Illinois, USA.

RELEVANT COURSES

Embedded System Design, Advanced Embedded Logic Design, Communication Systems, Signal Processing, RF Circuit Design, Smart Electronic System Design, Wireless System Implementation.