

Farshad Ghanei

CONTACT INFORMATION	332 Davis Hall University at Buffalo Buffalo, NY, 14260-2500	☎ Work phone: +1(716)645-4754 ✉ E-mail: farshadg@buffalo.edu 🌐 Web Page: http://www.buffalo.edu/~farshadg
RESEARCH INTERESTS	My current research is targeting modern battery-powered systems, and providing them with appropriate mechanisms to be able to track, account for, and manage energy. My areas of interest are: Energy Aware Systems, Embedded and Mobile Systems, Operating Systems	
EDUCATION	<ul style="list-style-type: none">➤ Ph.D. Computer Science, University at Buffalo, New York, USA Fall 2019➤ M.Sc. Electrical Engineering, University at Buffalo, New York, USA Spring 2015➤ B.Sc. Electrical Engineering, Sharif University of Technology, Iran Fall 2013	
ACADEMIC EXPERIENCE	<p>.....</p> <ul style="list-style-type: none">➤ Assistant Professor of Teaching, University at Buffalo<ul style="list-style-type: none">– Introduction to Operating Systems, Undergraduate and Graduate Level Spring 2020– Computer Architecture, Undergraduate and Graduate Level Spring 2020➤ Instructor, University at Buffalo<ul style="list-style-type: none">– Introduction to Operating Systems, Undergraduate and Graduate Level Spring 2019Link to recorded lectures playlist on Youtube➤ Research Assistant, University at Buffalo, Buffalo, New York Spring 2014 - Fall 2019➤ Teaching Assistant, University at Buffalo<ul style="list-style-type: none">– Introduction to Operating Systems – Instructor: Prof. T. Kosar Spring 2018– Introduction to Operating Systems – Instructor: Prof. K. Dantu Fall 2017– HDL Based Digital Design – Instructor: Prof. P. Meduri Spring 2014– HDL Based Digital Design – Instructor: Prof. P. Meduri Fall 2013➤ Teaching Assistant, Sharif University of Technology, Tehran, Iran<ul style="list-style-type: none">– Microprocessor Systems Design – Instructor: Prof. E. Sanaei Spring 2012– Microprocessor Systems Design (LAB) – Instructor: Prof. M. Tabandeh Spring 2012– Computer Architecture and Microprocessor – Instructor: Prof. E. Sanaei Fall 2011– Microprocessor Systems Design (LAB) – Instructor: Prof. M. Tabandeh Spring 2011– Microprocessor Systems Design – Instructor: Prof. E. Sanaei Spring 2011– Microprocessor Systems Design – Instructor: Prof. B. Vosughi Vahdat Spring 2011– Computer Architecture and Microprocessor (LAB) – Instructor: Prof. S. Bagheri Fall 2010– Computer Architecture and Microprocessor – Instructor: Prof. E. Sanaei Fall 2010– Programming in PASCAL – Instructor: Prof. M. Ehdaie Fall 2010– Programming in C++ – Instructor: Prof. M. Ehdaie Fall 2009– Programming in C++ – Instructor: Prof. M. Ehdaie Spring 2009➤ Teacher, High Schools and Junior High Schools (Farzanegan and Allameh Helli), Tehran, Iran<ul style="list-style-type: none">– Logic Circuits, Robotics, C++, Pascal and Delphi Fall 2008 to Spring 2013	

INDUSTRIAL
EXPERIENCE

- **ETick (Electronic Ticket) Pars Intelligent Technologies Company**, Tehran, Iran
 - ⇨ Embedded Group - Programming C code on an embedded terminal with serial port, RF card reader module, printer, SAM reader, GPRS modem. Sep 2012 to Aug 2013
 - ⇨ Research and Development - Research on applying EMV Specifications and ISO/IEC 7816 Standard on smart cards and terminals. Summer 2012
 - ⇨ Internship - Designing a passenger counter for public vehicles, which works by using image processing on images taken from digital cameras above the entrance. Summer 2010

PUBLICATIONS

- **Farshad Ghanei**, Jalil Modares, Nicholas Mastronarde, Karthik Dantu, "Minimum Energy Coverage Path Planning for UAVs", *IEEE Transactions on Automation Science and Engineering*, (**Under review**).
- **Farshad Ghanei**, Pranav Tipnis, Kyle Marcus, Karthik Dantu, Steven Ko, Lukasz Ziarek, "OS-based Energy Accounting for Asynchronous Resources in IoT Devices", *IEEE Internet of Things Journal*, vol. 6, no. 3, pp. 5841-5852, June 2019.
- Matthew Rantanen, Jalil Modares, Nicholas Mastronarde, **Farshad Ghanei**, Karthik Dantu, "Performance of the Asynchronous Consensus Based Bundle Algorithm in Lossy Network Environments", *IEEE Sensor Array and Multichannel Signal Processing Workshop (SAM)*, July 2018, Sheffield, UK.
- Jalil Modares, **Farshad Ghanei**, Nicholas Mastronarde, Karthik Dantu, "UB-ANC Planner: Energy Efficient Coverage Path Planning with Multiple Drones", *IEEE International Conference on Robotics and Automation (ICRA '17)*, May 2017, Singapore.
- **Farshad Ghanei**, Pranav Tipnis, Kyle Marcus, Karthik Dantu, Steven Ko, Lukasz Ziarek, "OS-based Resource Accounting for Asynchronous Resource Use in Mobile Systems", in *Proceedings of the 2016 International Symposium on Low Power Electronics and Design (ISLPED '16)*, pp 296-301, August 2016, San Francisco, CA.

SERVICE AND
OUTREACH

- Technical Program Committee Member of **1st IEEE WoWMoM Workshop on Wireless Networking, Planning, and Computing for UAV Swarms**, Washington D.C. Jun 2019
- Vice President/secretary of Graduate Student Association of the Department of Computer Science and Engineering, University at Buffalo Nov 2016 to Oct 2018
- Co-Hosting ARTY2017 (The Art, Robotics, and Technology for Youth summer robot workshop) for middle school students with *Prof. D. Burhans* from Canisius College, Buffalo, NY Jul 2017
- Hosting CS Ed-Week Robotics Demo at UB, for elementary, and middle school students Designing simple activities for students to accomplish using Ozobot robotic platform Dec 2016
- Member of International Orientation, University at Buffalo Aug 2016
- Member of Review Council for MDRF (Mark Diamond Research Fund) Mar 2016
A grant from UB Graduate Student Association, to graduate students for their research.
- Member of International Orientation, University at Buffalo Jan 2015
- Member of International Orientation, University at Buffalo Aug 2014
- President of Student Association of the Electrical Engineering Engineering department, Sharif University of Technology, Tehran, Iran Nov 2016 to Oct 2018
- Teaching *Nearu Martial Art and Self Defense* to students 2013 to Present

SELECTED
PROJECTS

- **Unmanned Aerial Vehicle (UAV) Runtime Trade-offs**, Optimizing flight parameters such as speed at runtime, while a UAV is flying indoors and running a specific task such as SLAM. Advisor: Prof. K. Dantu
- **jUAV: a Real-Time Java UAV Autopilot**, Studying open-source flight controllers (PX4 and ArduPilot), modifying the Hardware Abstraction Layer (HAL), and porting some of the lower level functionalities into a Java based Autopilot (Paparazzi UAV). Collaboration with Adam Czerniejewski. Advisors: Prof. K. Dantu, Prof. L. Ziarek
- **Unmanned Aerial Vehicle (UAV) In-flight Energy Measurement**, Building a custom circuitry with sensors to measure realtime in-flight energy consumption of each and every motor in a UAV. Analysis of data for better flight efficiency. Advisors: Prof. K. Dantu, Prof. N. Mastronarde
- **Unmanned Aerial Vehicle (UAV) flight controller**, Using VICON Motion Capture System, implementing a PID controller for a UAV in ROS. UAV position is captured by VICON cameras, and relayed to the controller, Based on the requests submitted in ROS message format, it commands the on-board attitude controller accordingly. Advisor: Prof. K. Dantu
- **OS-based Resource Accounting for Asynchronous Resource Use in Mobile Systems**, Modifying Linux kernel to track requests and responses to WiFi and GPS modules, accounting for energy usage and attribution. Group research project. Advisor: Prof. K. Dantu
- **Android Wakelock Manager**, Modifying Android 6.0.1 framework code and introducing new APIs, develop a system app using those APIs, to find energy bugs on the system -applications that keep the phone from going to sleep using Android *wakelocks*- and manage them as per-user preference. Group course project: CSE622-Advanced Computer Systems. Advisor: Prof. S. Ko
- Various FPGA implementations on **Xilinx Spartan 3AN** and **Altera DE2** FPGA Starter Kits (playing sound with keyboard, drawing lines and shapes on monitor with mouse), using **Xilinx Microblaze Soft Processor** to emulate embedded systems and communicate with PC through serial port. Advisors: Prof. M. Tabandeh, Prof. M. Shabany
- **Server-Client System**, Connecting 2 PCs using serial connection with different functions using x86 Assembly. Group course project. Advisor: Prof. E. Sanaei
- **Decorative Waterfall**, Showing different characters and shapes with falling water drops, using Atmel Atmega16 Microcontroller, Independent group project.

HONORS AND
AWARDS

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- **Graduate Teaching Award** Dec 2019
Department of Computer Science and Engineering, University at Buffalo
 - **Best Graduate Leadership Award** Dec 2017
Department of Computer Science and Engineering, University at Buffalo
 - **Best Poster Award** at Graduate Presentation Sep 2017
Department of Computer Science and Engineering, University at Buffalo
 - **Graduate Dean's Scholars Award** from Dr. Liesl Folks Apr 2014
Dean of School of Engineering and Applied Sciences, University at Buffalo
 - **4 Year Fellowship Award** of the *National Elite Foundation* Fall 2007 to Spring 2011
Tehran, Iran; This fellowship is awarded each year to those who have achieved the highest academic standing in the country among more than 1 million students.
 - Awarded **Dean's Honorary Award** from Dr. Saeed Sohrabpour Jun 2008
President of Sharif University of Technology for exceptional performance in National University Entrance Exam.
 - **Ranked 1st** in the state and qualified for the national level of *9th Khwarizmi Young Award* for **Designing and Building a Semi Finger Touch Display**, Tehran, Iran 2007
 - **Ranked 50th** out of 350,000+ undergraduate applicants in the National University Entrance Exam for B.Sc. degree, Tehran, Iran Jun 2007
 - **Black Belt Dan III** in *Nearu Martial Art*, Dedicated Instructor 2013 to Present

LAST UPDATED 2020/01/22