Mona Jalal

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RESEARCH INTERESTS

Computer Vision, Machine Learning, Deep Learning.

EDUCATION

Computer Science Ph.D. in Computer Vision
Boston University, Boston, MA, USA.
Adviser: *Professor Margrit Betke*
September 2017-May 2021

Double Major M.Sc. in Computer Sciences and Electrical Engineering
University of Wisconsin-Madison, Madison, WI, USA.
CS GPA: 3.62, CGPA of both degrees: 3.49
CS Master's Graduation: May 15th 2016, EE Master's Graduation: August 24th 2014

M.Sc. in Computer Engineering Majored in Computer Architecture
Sharif University of Technology, Tehran, Iran.
CGPA: 17.71 out of 20

B.Sc. in Computer Engineering Majored in Computer Hardware
Shahid Beheshti University, Tehran, Iran.
CGPA: 15.32 out of 20
Second best hardware engineering student in batch of 2009 graduates

PUBLICATIONS

W. Kim, M. Jalal, S. J. Hwang, S. C. Johnson, V. Singh, Online Graph Completion: Multivariate Signal Recovery in Computer Vision, CVPR17.

A. Kumar, M. Jalal, B. Yan, J. F. Naughton, J. M. Patel: Demonstration of Santoku: Optimizing Machine Learning over Normalized Data. PVLDB 8(12): 1864-1875, 2015.

A. Sangari, M. Jalal, H. Ardalani, E.S. Selen, H.T. Dashti, M. Mahdavi, Amir H. Assadi, **High-throughput Data Collection and Automated Imaging**, Annual Eye Research Institute Vision Science/Visual Art Poster and Gallery Session, October 2011 (Poster Version).

M. Jalal, Z. Shirmohammadi, A. Patooghy, S. G. Miremadi, Evaluation of Application Mapping for Network-on- Chips, Accepted in Real-time and Embedded Systems (RTES'10), 2010.

Z. Shirmohammadi, M. Jalal, A. Patooghy, S. G. Miremadi, A Reconfigurable Switch Architecture to Enhance Reliability of Network-on-Chips, Accepted in Real-time and Embedded Systems (RTES'10), 2010.

RECENT JOBS

R&D Engineer 1
Center for Augmented Cognition at UC-Berkeley, Berkeley, CA, USA.
Under supervision of Dr. Allen Y. Yang and mentorship of Joseph Menke
May 1st-August 15th 2017

Research Intern
Computer Vision Group, Medical Sciences Center, University of Wisconsin-Madison, Madison, WI, USA.
Under supervision of Professor Vikas Singh and mentorship of Professor Won Hwa Kim
August 1st 2016-May 1st 2017

Graduate Research Assistant
Internet of Things Lab, *University of Wisconsin-Madison*, Madison, WI, USA.
Under supervision of Dr. Thomas Yen, Professor Raj Veeramani and Alfonso Gutierrez
May 15th 2015-May 15th 2016

Selected Academic Projects

Pedestrian dataset collection by playing video games. Computer Vision, Computer Graphics

Large-scale graph completion for object detection in a social network using deep learning and natural language processing. Computer Vision, NLP, Deep Learning

Integrated smart home automation using OpenHAB platform. IoT, Home Automation

Performance tuning in Hive/MR, Hive/Tez, Apache Storm and Apache Spark. Big Data

Toyota driving automation natural user interface using Intel RealSense 3D camera. Computer Vision, Human-Machine Interaction

JPEG image compression, spectral correlation, IIR and FIR filter design with application in ECG, MinMax equalizer, windowing using MATLAB and a survey on Image segmentation using spectral clustering. Image Processing, Computer Vision

Survey on community mining in social networks. Information Retrieval, Machine Learning

Implemented command line interpreter (Shell), memory management module, kernel threads in Linux environment and modified xv6 simulator to support Multi-Thread, and lottery scheduling. Operating Systems, Kernel Hacking

Survey on creating accelerator for GPU and converting/annotating C Benchmarks to CUDA-C. GPU, Computer Architecture

DySER, use of accelerators beside OpenSparcT1, on VIRTEX 7. FPGA, Computer Architecture

Exploiting heterogeneity in Amazon EC2 cloud for better pricing and better availability using CloudMeter simulator. Cloud Computing

Design of a fully 5-stage pipelined MIPS processor with 2-way set associative cache using Verilog & synthesized with Design Compiler. Computer Architecture

A Survey on near-duplicate video detection methods using YouTube API, Google App Engine, Hadoop, and Condor. Information Retrieval, Computer Vision

Programming a robot arm for automated Arabidopsis Photography in Study of Roots using Visual C++. Computer Vision

Designing and maintaining the UW-Madison Persepolis research group Website via Joomla CMS and customized HTML/CSS/jQuery. Web Development

Hardware implementation of a fast improved decimal multiplier using VHDL. Computer Architecture, Computer Arithmetic

Honors & Awards

Offer of 5-year fellowship for Computer Sciences Ph.D. studies in Computer Vision, Boston University, Boston, February 1st, 2017.

Chef diversity scholarship for attending ChefConf16.

Twitter Inc. and Bloomberg Inc. grant for attending SREcon16.

Travel scholarship for attending CRA-W Graduate Cohort Workshop.

Google scholarship for attending Google UBIQUITY: Beyond the Internet of Things.

Google Anita Borg Institute (ABI) scholarship for attending GHC15.

Major League Hacking travel scholarship for attending mHacks6.

Google travel scholarship for attending VLDB15.

TACC travel scholarship for attending supercomputing summer institute.

Full CS departmental funding for attending GHC14.

TACC scholarship for attending IEEE BigData14 conference and first hands-on workshop on leveraging high performance computing resources for managing large datasets.

Apple Inc. scholarship for attending GHC13.

TEACHING EXPERIENCES

IoT Lab Student Assistant, Internet-of-Things lab, supervised by Dr. R. Veeramani, T. Yen, A. gutierrez, Designed tutorials and have worked with Microsoft Band, Pebble Smart Watch, CrazyFlie nanocopter, Parrot AR Drone 2 with Myo armband/Leap Motion, Intel Galileo Gen1 board, Arduino Yun board, Raspberry Pi 2, as well as working with IoT platforms like ThingWorx, IBM Watson, IBM BlueMix, AWS IoT, from May 2015 to May 2016.

Mathematics and Science Lead, Program Assistant for PEOPEL program in East High School, Coordinator: Paul Ly Tong Pao, Spring and Fall 2014, Spring 2015.

Calculus and Analytic Geometry 1 (Math221), Teaching Assistant, Instructor: Dr. Gloria Mari-Beffa and Dr. Ruifang Song, Department of Mathematics, University of Wisconsin-Madison, Fall 2013.

Introduction to Computer Engineering (CS252), Teaching Assistant, Instructor: Dr. Guri Sohi and Dr. Mark Hill, ECE/CS Department, University of Wisconsin-Madison, Spring 2013.

Introduction to Computer Architecture (ECE/CS552), Teaching Assistant, Instructor: Dr. Yu Hen Hu, ECE/CS Department, University of Wisconsin-Madison, Fall 2012.

Advanced Electronic Circuits (ECE342), Teaching Assistant, Instructor: Dr. Giri Vekataramanan, ECE Department, University of Wisconsin-Madison, Fall 2012.

Nephrotex Virtual Internship for Freshman Engineering Students(InterEng101), Student Assistant and Design Advisor, University of Wisconsin-Madison, Fall 2012.

Persian Language, Tutor for APTLII Program, University of Wisconsin-Madison, Summer 2012.

Seeing through Engineer Eyes, 3-week intensive workshop for middle school students, Instructor, University of Wisconsin-Madison, Madison, WI.

Embedded System Design, Teaching Assistant, Instructor: Dr. A.Ejlali, Computer Engineering Department, Sharif University of Technology, Spring 2011.

VLSI Design,Teaching Assistant, Instructor: Dr.M.Modarresi, Computer Engineering Department, Sharif University of Technology, Spring 2011.

Network Laboratory, Instructor, Computer Engineering Department, Sharif University of Technology, Spring 2011.

Digital Design Laboratory (using Verilog HDL and implementing on Altera and Xilinx FPGAs),Instructor, Computer Engineering Department, Sharif University of Technology, Fall 2010.

SKILLS

Programming Languages: Python, Java, R, C, Visual C#.net, C++.

Web Development: HTML5, CSS3, Twitter Bootstrap, Joomla! CMS, jQuery.

Operating Systems: OSX, Linux (Ubuntu, Raspbian, CentOS & Redhat) and Microsoft Windows 7, 8.1/10 (Enterprise Edition).

Also have worked with: Faster-RCNN, SSD(Single Shot Detector), YOLO(You Only Look Once), JavaScript, Node.js, Shiny API, NLTK, JSON, MPI and MATLAB-MPI, Twitter API, Instagram API, HTCondor, YouTube Python API, Google Visualization API, bash scripting, LaTeX, git, Apache Spark, Cloudlab, Visual C++.net, X86 Assembly, Postgresql, Verilog, VHDL, CUDA-C, Altera Quartus, XilinX ISE, GPGPU-Sim, CUDA Toolkit, Gem5-GPU, TextBlob, Wireshark, Docker, AWS-EC2, Scrapy, Gensim, Jupyter, PHP.

LANGUAGES

Farsi, **English**: professional proficiency, **French**: intermediate, **Italian**: basic, **Arabic**: basic.