ERIC (EHSAN) QASEMI

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RESEARCH INTEREST

Machine Learning **DataScience** **Bioinformatics** **High Perf. Computing**

EDUCATION

MSC. IN COMPUTER SCIENCE(GPA 3.53/4) : University of Wisconsin at Madison, **(Graduate: May 2018)**

MSC. IN COMPUTER ENGINEERING (GPA 3.53/4) : University of Wisconsin at Madison, **(Graduate: May 2017)**

- **CERTIFICATE IN ENTREPRENEURSHIP (GPA 3.5/4):** University of Wisconsin Madison, Madison, WI, USA

BSC. IN ELECTRONICS ENGR. /DIGITAL SYS. (GPA 16.12/20) : University of Tehran, **(Graduate: February 2015)**

Skills

Programming : C/C++, Python, Java, Scala, Matlab, Julia, Octave, Cuda, OpenCL, Assembly, VB
HPC Libraries : Hadoop (HDFS, MR, Tez), **Spark** (SQL, Streaming), Apache(**Hive**, **storm**, **flink**)
ML Libs : Tensorflow, Keras, Pandas, NumPy, SciPy, MatPlotLib, scikit-learn, PyQt, JuMP, D3
HDLs : Verilog, SystemVerilog, VHDL, Chisel HDL, System C/C-AMS
Databases : SQL, SQL-Lite, RocksDB

RESEARCH EXPERIENCE

PERSEPOLIS RESEARCH GROUP University of Wisconsin-Madison
Prof. Amir Assadi 2016-Current

- Research and development in big data science methods: Manage and process **massive heterogeneous spatiotemporal data sets** and **BIG DATA** that includes time-series data, video, genome sequence etc.
- Research team member for the project: Novel clustering and data visualization methods for discovery of **Autism Spectrum Disorder (ASD)** personalized therapy.
- Propose an architecture based on **Deep Recurrent Neural Network** and its implementation for a solution of ASD classification.
- Research and development of physics-based algorithm and software: **Entropy methods** in ASD feature discovery, and pattern classification.
- **INTELLECTUAL PROPERTY** (**IP**) Disclosure: Novel algorithms and methodology in medicine of ASD, disclosed to Wisconsin Alumni Research Foundation (**WARF**) for patent application.
- Research in Progress:
  - Big data local-to-global methods in analysis and prediction of dynamics in **Atmospheric Chemistry Spatiotemporal Data**.
  - Inverse problems in **brain activation dynamics** using multiple modalities (**fMRI**, **EEG**, and **DTI**)

CASES IN COMPENSATION University of Wisconsin-Madison
Prof. Barry Gerhart 2015-2016

- **FINANCIAL DATA ANALYTICS**: Implement interactive application to manage and Analyse the **Financial dataset**
- Case In Compensation: Implement an **integrated case on pay model and Compensation** used in the HR Compensation textbook.

DESIGN, VERIF. & DEBUG OF EMBEDDED SYSTEMS (DVDES) LAB University of Tehran
Prof. Bijan Alizadeh 2014-15

- HW/SW co-design of highly parallel Blokus-Duo Solver based on **Monte Carlo Tree Search (MCTS)** Engine on Terasic DE2-115 FPGA board.
- Research on a Monte-Carlo Tree Search(MCTS) Based Scheduling algorithm.

SILICON INTELLIGENCE AND VLSI SIGNAL PROCESSING(SI) LAB University of Tehran
Prof. Sayed Mehdi Fakhrae Summer & Fall 2013

- Design state-of-the-art low power SRAM memory cells to operate in subthreshold voltages.
- Automated SRAM Memory Generator CAD tool compatible with low-power SRAMs in sub-threshold

COMPUTER-AIDED DESIGN(CAD) AND TLM LABS University of Tehran
Prof. Zain Navabi Summer & Fall 2012

- Research on formal verification methods using temporal logic
- HW/SW co-design of AES encryption/decryption algorithm on FPGA platform.

PROFESSIONAL EXPERIENCE

LEAD EMBEDDED DESIGNER/SOFTWARE DEVELOPER/VERIFICATION ENGINEER AUGUST 2014-JULY 2015
IWIN CO. Tehran, IRI

- FPGA-based Hardware Security Module (HSM) to provide a secure platform for bank applications such as money transactions, on Zync7100 SoC platform.
- Manage a 4 member HW team to Design the FPGA-based hardware to implement wide range of cryptographic algorithms in Chisel HDL (RSA, AES, 3DES, ECC, etc.)

SOFTWARE DEVELOPER/ EMBEDDED ARCHITECT MAY 2016-AUGUST 2016
PARDIS CO. Tehran, IRI

- Embedded low cost web server to manage a cryptographic network node to secure media the communication.

SOFTWARE DEVELOPER/EMBEDDED ARCHITECT JUN 2013-JAN 2014
S. T. FARABI CO. Sanandaj, IRI

- High performance, low-cost **Genetic algorithm (GA)** based robotic arm controller on FPGA platform.
- GA based high throughput **Face Recognition** hardware on FPGA platform

NOTABLE PUBLICATIONS

- M. Biglari, **E. Qasemi**, B. PourMohseni, "Maestro: A High-Performance **AES Encryption/Decryption** System", The 17th CSI International Symposium on Computer Architecture & Digital Systems (CADS 2013), October 3031, 2013, School of Computer Science, IPM, Tehran, Iran.
- **E. Qasemi**, Mohammad H. Shadmehr, Bardia Azizian, Amir Samadi, Sajjad Mozaffari, Amir Shirian and Bijan Alizadeh, "Highly Scalable, Shared Memory , **Monte Carlo Tree Search** based Blokus Duo Solver on FPGA ", International Conference on Field-Programmable Technology (FPT), 2014.

TEACHING EXPERIENCE

UNIVERSITY OF WISCONSIN-MADISON:

CS 552: Introduction to Computer Architecture (Prof. Yu H. Hu)	Fall 2016
ECE 344: Electrical Circuits (L. Shohet)	Summer 2017
LCA 601,563: Advanced Persian Language (E. Barnard)	Fall 2016, 2017, Spring 2017,2018
CS 352: Digital System Fundamentals (K. Morrow, X. Zhang)	Spring 2016
CS 252: Introduction to Computer Engineering (K. Morrow, M. Morrow)	Spring 2016

UNIVERSITY OF TEHRAN:

ECE 615: Electronic System Level Design (B. Alizadeh)	Spring 2015
ICEEP: Embedded Linux Workshop (Z. Navabi)	Summer 2014.
ECE 367: Digital Logic Design lab (Z. Navabi)	Spring 2013,2014, Fall 2013, Summer 2014
ECE 532: Object-Oriented Simulation of Electronic Systems (Z. Navabi)	Spring 2013, 2014
ECE 642: FPGA Based Embedded System Design (B. Alizadeh)	Fall 2013, 2014
ECE 423: Computer Architecture (S. Safari)	Spring 2014
ECE 267: Introduction to Computer and Computing Systems (H. Moradi)	Fall 2012

TEST SCORES

TOEFL iBT:	(Reading 28, Listening 30, Speaking 26, Writing 25) 109/120
GRE General	Quant: 164, Verbal: 149, Analytics: 3.5/6
UW SPEAK TEST	55/60

NOTABLE ACADEMIC PROJECTS

University of Wisconsin-Madison:

Study on Monte-Carlo Tree Search Algorithms for Parallel Platforms in CUDA, OpenMP, and MPI	CS759
Study on Security analysis of Split Manufacturing method in Chip manufacturing	CS756
XSS, XSFR, SQLI, and Phishing attacks and their countermeasures in websites (HTML, JS)	CS642
Low-level OS exploits using Aleph One's code (Stack Smashing, Double free, Format String)	CS642
Neural Network based Sonar Radar in Python	CS760
Handwriting recognition with Neural networks in Python	CS760
Study on Data predictions (TAGE and V-TAGE) in Modern Processor Architecture	CS752

University of Tehran:

Skin Detection Algorithm for NVIDIA GPU platforms in CUDA	ECE403
Study on parallel sorting methods (RADIX, Bubble, Merge, and Quick) in MPI	ECE403
Harmonic Synthesizer with Gender Identification Based on AC Pitch Estimation Method.	ECE991
Real-time, RLS based, Adaptive noise cancellation FIR filter on DSK6700, DSP boards.	ECE991
Automated adaptive voice recorder tool based on PESQ speech quality evaluation method	ECE403
Client/Server Cloud Storage Application in Python	ECE412

VOLUNTARY AND LEADERSHIP EXPERIENCE

President at Persian Student's Society of UW Madison (PSS) 2015-2017
Organize and Lead group of 7 undergraduate students to participate in:
ICFPT Design Competition Summer and Fall 2014-15
FPGASoC Design competition Winter 2014
Embedded Linux workshop instructor at ICEEP Group Summer 2014

INTERESTS

Piano, and Setar (Persian Traditional instrument),
Archery, Hiking, Biking, and Hitchhiking (I have really missed this last one)
Languages: Persian(MT), Kurdish(MT), Azeri(MT), Arabic (reading knowledge), English

Research/Academic Collaborators

University of Wisconsin-Madison:

Prof. A. Assadi **ahassadi@wisc.edu**
Prof. Yu H. Hu **hu@engr.wisc.edu**
Prof. L. Laurent **laurent.lessard@wisc.edu**

University of Tehran:

Prof. B. Alizadeh **b.alizadeh@ut.ac.ir**
Prof. M. A. Akhaee **akhaee@ut.ac.ir**
Prof. S. M. Fakhrae **fakhrae@ut.ac.ir**
Prof. Z. Navabi **navabi@ut.ac.ir**