

# Mohammad Motamedi

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## EDUCATION

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*Ph.D. Candidate, Electrical and Computer Engineering, University of California, Davis, US.* 2014–Present

- GPA: **4.0/4.0**.
- Research Area: Deep Learning, Mobile Computing, and Parallel Processing.

*M.Sc., Electrical and Computer Engineering, Amirkabir University of Technology (AUT), Iran.* 2012–2014

- GPA: **4.0/4.0**.

*B.Sc., Electrical and Computer Engineering, Amirkabir University of Technology (AUT), Iran.* 2008–2012

## EXPERIENCE

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**Deep Learning Intern, Deepen AI Inc, Santa Clara, California.** Summer 2018

Designing deep neural networks for processing 2D/3D LiDAR point clouds for self-driving cars and robots.

- C++ • JavaScript • Python – Keras – TensorFlow – PCL – React – Luma.gl – Deck.gl

**Deep Learning Intern, Deepen AI Inc, Sunnyvale, California.** Summer 2017

We developed a point-cloud visualizer for labeling and classifying 3D LiDAR data for self-driving cars.

- C++ • Lua • Java • Python • RenderScript – PCL – Torch

**Research Assistant, University of California, Davis.** 2014 - Present

I work on energy efficient implementation of Deep Neural Networks on embedded devices:

- Developed a platform for automated acceleration of CNNs on mobile SoCs.
- Developed a platform for accelerating CNNs on FPGAs.
- Keras • Java • Python • RenderScript • Verilog – Caffe – Android – Tensorflow

**TA of the Senior Project Design Courses, University of California, Davis.** 2015 - 2018

Developed materials for the senior design project courses (EEC181A, EEC181B). Using the developed content, students design a deep network for MNIST dataset and accelerate it on an FPGA.

- Verilog – Quartus – MATLAB

**Research Assistant, High Performance Computing lab, AUT, Iran.** 2010 - 2014

Developed an algorithm for license plate recognition.

- C++ • CUDA • OpenCV – LabVIEW

**Software Engineering Intern, Sahi System Inc., Iran.** Summer 2010 and 2012

Developed a cloud-based HSE management system.

- C# • Java • JavaScript • HTML • SQL

## Graduate Coursework

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Parallel Algorithms (A+), Artificial Intelligence (A), Operating Systems (A), Applied Numerical Linear Algebra (A+), Computer Architecture (A), Embedded Computing (A+), Design and Analysis of Algorithms (Audited). Machine Learning (A).

## AWARDS

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UC Davis <b>fellowship award</b> (9 Quarters).	2014 - 2017
<b>Best Paper award</b> in the 22nd Iranian Conference on ECE, IEEE.	2014
<b>Best M.Sc. student award</b> , AUT (ranked 1 out of 182 students).	2014
Ranked in the <b>top 0.1 %</b> in the nationwide university entrance exam.	2008

## PUBLICATIONS

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- Mohammad Motamedi**, Daniel Fong, and Soheil Ghiasi, "Cappuccino: Efficient CNN Inference Software Synthesis for Mobile System-on-Chips" *IEEE Embedded Systems Letters*. 2018
- Philipp Gysel, Jon Pimentel, **Mohammad Motamedi**, and Soheil Ghiasi, "Ristretto: A framework for empirical study of resource-efficient inference in convolutional neural networks" *IEEE Transactions on Neural Networks and Learning Systems*. 2018
- Daniel Fong, Andre Knoesen, **Mohammad Motamedi**, Terry O'Neill, and Soheil Ghiasi, "Recovering the Fetal Signal in Transabdominal Fetal Pulse Oximetry" *Smart Health*. 2018
- Mohammad Motamedi**, Daniel Fong, and Soheil Ghiasi, "Machine Intelligence on Resource-Constrained IoT Devices: The Case of Thread Granularity Optimization for CNN Inference." *ACM Transactions on Embedded Computing Systems (TECS)* 16.5s (2017): 151. 2017
- Mohammad Motamedi**, Philipp Gysel, and Soheil Ghiasi, "PLACID: A Platform for FPGA-Based Accelerator Creation for DCNNs." *ACM Transactions on Multimedia Computing, Communications, and Applications (TOMM)* 13.4 (2017): 62. 2017
- Mohammad Motamedi**, Daniel Fong, and Soheil Ghiasi, "Fast and Energy-Efficient CNN Inference on IoT Devices", *arXiv preprint arXiv:1611.07151*. 2016
- Philipp Gysel, **Mohammad Motamedi**, and Soheil Ghiasi, "Hardware-oriented Approximation of Convolutional Neural Networks", *arXiv preprint arXiv:1604.03168*. 2016
- Mohammad Motamedi**, Philipp Gysel, Venkatesh Akella, and Soheil Ghiasi, "Design Space Exploration of FPGA-Based Deep Convolutional Neural Network", *IEEE/ACM Asia-South Pacific Design Automation Conference*. 2016
- Mohammad Foroozannejad, **Mohammad Motamedi**, and Soheil Ghiasi, "Memory Access Analysis and Optimization for Efficient Streaming Software Synthesis" 2014
- Mohammad Motamedi** and R. Safabakhsh, "A Fast, Parallelized Logo Detection Algorithm on Graphics Processing Units", *22nd Iranian Conference on Electrical Engineering, IEEE*. (Best Paper Award). 2013
- Mohammad Motamedi**, Sima Sobhieh, S.A. Motamedi, and A.H. Rezaie, "An Ultra-Fast, Optimized and Parallelized Curvelet Transform Algorithm on GP-GPUs", *21st Iranian Conference on Electrical Engineering, IEEE*. 2013
- E. Arianian, S.A. Motamedi, I. Arianian, and **Mohammad Motamedi**, "Accelerated Optical Character Recognition on Graphics Processing Units", *International Journal of Information and Com. Technology Research*. 2012
- B. Taheri and **Mohammad Motamedi**, "An adaptive risk-based distributed HSE management system", *4th National Conference on HSE, Tehran, Iran, 2011*. 2011