

Negar Goli

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RESEARCH INTERESTS

- Machine Learning - Computer Vision
- Computer Graphics
- Computer Architecture

EDUCATION

University of British Columbia <i>M.Sc. in Computer Engineering</i>	Vancouver, Canada <i>Sep. 2017 – May 2020</i>
Sharif University of Technology <i>B.Sc. in Computer Engineering</i>	Tehran, Iran <i>Sep. 2012 – Feb. 2017</i>

EXPERIENCE

Full-time Computer Graphics Researcher <i>Huawei Technologies Co.</i>	Jul. 2020 – Present <i>Vancouver, Canada</i>
<ul style="list-style-type: none">• Research on efficient real-time rendering algorithms - 2020• Research on dynamic global illumination and hybrid raytracing - 2021	
Graduate Research Assistant <i>Tor Aamodt Research Group, ECE Department, University of British Columbia</i>	Sep. 2017 – Jun. 2020 <i>Vancouver, Canada</i>
<ul style="list-style-type: none">• Research on accelerating deep learning algorithms<ul style="list-style-type: none">* Published in CVPR 2020 - Oral session (acceptance rate 5.7%)• Comprehensive study of the Tensor Core's design in NVIDIA's Volta and Turing architectures<ul style="list-style-type: none">* Published in ISPASS 2019	
Visitor Researcher, NSERC COHESA <i>Andreas Moshovos Group, ECE Department, University of Toronto</i>	Apr. 2019 – May 2019 <i>Toronto, Canada</i>
<ul style="list-style-type: none">• Research on deep learning accelerators for sparse neural networks	
Undergrad Research Assistant <i>Architectures and Networks Laboratory, CE Department, Sharif University of Technology</i>	Apr. 2016 – Aug. 2017 <i>Tehran, Iran</i>
<ul style="list-style-type: none">• Comprehensive study on thread level parallelism in GPU	
Summer Internship <i>ICT Innovation Center, Sharif University of Technology</i>	Jun. 2015 – Sep. 2015 <i>Tehran, Iran</i>
<ul style="list-style-type: none">• Implementation of cryptographic hash function on FPGA	
Undergrad Research Assistant <i>Data Storage and Processing Laboratory, CE Department, Sharif University of Technology</i>	Dec. 2014 – Mar. 2016 <i>Tehran, Iran</i>
<ul style="list-style-type: none">• Research on power-efficient FPGA architectures	

PUBLICATION

ReSprop: Reuse Sparsified Backpropagation <i>Negar Goli, Tor Aamodt</i>	CVPR 2020 - Oral
Modeling Machine Learning Accelerator Enabled Graphics Processors <i>Negar Goli*</i> , Md Aamir Raihan* (*equal contribution), Tor Aamodt	ISPASS 2019
Analyzing Machine Learning Workloads Using a Detailed GPU Simulator <i>Jonathan Lew, ..., Negar Goli, Matthew D. Sinclair, Timothy G. Rogers, Tor Aamodt</i>	ISPASS 2019

COURSE PROJECTS

- Graph Partitioning Algorithms for VLSI Circuit** | *Python, C++* M.Sc. Course project
- Implementation and analysis of several partitioning algorithms
 - * Simulated Annealing, Tabu Search
 - * Genetic Algorithm, Improved Genetic
 - * Multi-level Partitioning, Spectral, Parallel Spectral and Modified Spectral
 - Github link
- A Survey on Deep Learning Methods in Medical Brain Image Analysis** M.Sc. Course project
- An overview of CNN architectures and compare several state-of-the-art techniques for brain segmentations
 - Github link
- Parallel Coding of Reverse Time Algorithm** | *C, C++ (pthread), MPI, OpenMP* M.Sc. Course project
- Github link
- CPU Modelling** | *Verilog* B.Sc. Course project
- Digital system design: designing a light-weight CPU including ALU, control-unit, instruction memory, data memory and IO in Verilog
- Vector Processor** | *Altera Quartus* B.Sc. Course project
- Computer architecture: designing a vector processor using DMA to read instructions from memory, implemented with logic gates in Altera Quartus
- Shelegram** | *Python, Django* B.Sc. Course project
- Web programming: a real-time chat program similar to WhatsApp using Ajax in Django web framework
 - Github Link
- News Channel** | *Python, Django* B.Sc. Course project
- Web programming: a social media app based on news using Django web framework and MongoDB
- Chess** | *C++* B.Sc. Course project
- Advance C++ programming: simulate a chess game using QT framework implemented in C++
- Face Detection** | *C++* B.Sc. Course project
- Advance C++ programming: detect faces in a picture using C/C++ coding in Visual Studio

TECHNICAL SKILLS

Languages: Python, C/C++, JavaScript, Julia, Matlab, Cuda, Verilog

Frameworks: Pytorch, QT, Modelsim, Altera Quartus

Developer Tools: Git, Google Cloud Platform, VS Code, Visual Studio, PyCharm, Eclipse