SeyedMahdi **Hosseini Miangoleh**

M.Sc Student · Computing Science

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Education

Simon Fraser University — *Vancouver, BC, Canada*

M.Sc in Computing Science — *Jan. 2020 - Expected(April. 2022)*

- GPA : 4.13/4.33

Sharif University of Technology — *Tehran, Tehran, Iran*

M.Sc in Electrical Engineering — *Sep. 2018 - Dropped Out(Nov. 2019)*

- Minor in Digital Electronics
- GPA : 3.66/4 (17/20)

Sharif University of Technology — *Tehran, Tehran, Iran*

B.Sc in Electrical Engineering — *Sep. 2014 - June 2018*

- Minor in Digital Systems and Devices
- GPA : 3.58/4 (16.6/20)
- Last two years GPA : 3.67/4 (17.36/20)

Research Experiences

Visual Distraction Reduction — *Computer Vision*

Adobe Research — *Currently Working on this project*

- Applying deep learning to reduce the saliency of the distractor objects present in a scene.

High-Res Monocular Depth Estimation — *Computer Vision*

Simon Fraser University — *Published at Proc. CVPR 2021*

- Boosting Monocular Depth Estimation Models to High-Resolution viaContent-Adaptive Multi-Resolution Merging - Proc. CVPR 2021
- (Project webpage)

Computational Flash Photography — *Computational Photography*

Simon Fraser University

- Computational flash generation or decomposition using a neural network that enables various image manipulation and edits of the extracted or generated flash illumination.

Deep learning in Autonomous Vehicles — *M.Sc. Thesis*

Sharif University of Technology — *Dropped Out*

- Using deep learning algorithms for image processing in autonomous vehicles because of its no-need-to-feature-engineering nature and high accuracy is one of the best choices. but the limitation of resources in embedded systems and heavy computations of deep learning algorithms must be taken care of. we try to use GPUs and parallel computing techniques to achieve this goal.

Skills

Machine Learning Frameworks	Pytorch, Tensorflow, Keras
Programming Languages	OOP, C/C++, Python, Java, MATLAB
Parallel and Distributed Computing	CUDA, SLURM

Publications

Boosting Monocular Depth Estimation Models to High-Resolution via Content-Adaptive Multi-Resolution Merging — *In Proc CVPR 2021*

S. Mahdi H. Miangoleh*[1], Sebastian Dille*[1], Long Mai[2], Sylvain Paris[2], Yağız Aksoy[1] — *Simon Fraser University[1], Adobe Research[2]*

- Project webpage

Theoretical Foundations of Learning in Mathematical Sciences — *ISBN:978-600-8533-12-2*

S. Hasan H. Miangoleh, S. Mahdi H. Miangoleh — *2017*

Experiences

Research Intern
Aug. 2021 - Present

Adobe — *Cambridge, Massachusetts (remote)*

Software(C/C++) Developer
Sep. 2017 - 2019

Soroush Media Technology Development — *Tehran, Iran*

- Worked as a member of SCRUM(agile project management) team
- Developed graphical user interface with Qt (C/C++)
- Developed scripts to communicate with back-end servers in order to provide real-time updated information(web services and databases)
- Tested all software prior to applications going live to alleviate bugs and troubleshoot issues
- Developed scripts to communicate with XMPP servers in order to provide instant messaging service
- Link : https://sapp.ir

Honors & Awards

2021	**Awarded,** Computing Science graduate fellowship, Simon Fraser University
2020	**Awarded,** Computing science graduate fellowship, Simon Fraser University
2018	**Ranked 8th,** in the Nationwide University Entrance Exam known as Konkoor for M.Sc. degree in Electrical Engineering
2014	**Ranked 33th,** in the Nationwide University Entrance Exam known as Konkoor for B.Sc. degree in Engineering
2014	**Ranked 735th,** among more than 230,000 participants in the Nationwide University Entrance Exam known as Konkoor for B.Sc. degree in Engineering
2010	**Admitted to,** shahid beheshti High school, Member of NODET, NODET stands for National Organization for Development of Exceptional Talents

Academic projects

Dolly zoom (vertigo shot) effect using a single video
Computational photography

Simon Fraser University — *M.Sc.*

- Using deep learning to fake the vertigo shot from a single video

Light source decomposition on single image
Computational photography

Simon Fraser University — *M.Sc.*

- Using deep learning to decompose different light sources effect on a scene based on a single image

Mix-n-Match Chairs
Computer Graphics

Simon Fraser University — *M.Sc.*

- Using SCORES network to perform a mix-n-match on Part-net Chairs dataset

Video Synopsis
Computer Vision

Sharif University of Technology — *M.Sc.*

- Using object detection and tracking algorithms and process each frame then using these information to summerize space-time tube and achieve a brief video from hours of surveillance video input.

Human Activity Detection
Computer Vision

Sharif University of Technology — *B.Sc.*

- Feature extraction on CAD-60 and TST Fall Detection dataset then using SVM for classification

Clustering Wikipedia pages
Machine Learning

Sharif University of Technology — *B.Sc.*

- Text clustering using K-means for classification of 60,000 Wikipedia pages of people into clusters of politicians, actors, athletes, etc. in MATLAB

Prediction of bill payment on time
Machine Learning

Sharif University of Technology — *B.Sc.*

- Predicted whether a given bill will be paid on time with Adaboost and Random Forest in MATLAB

Analyzing Lending Club's issued loans
Machine Learning

Sharif University of Technology — *B.Sc.*

- Predict the loan status and lateness of people in payments with Adaboost in MATLAB

Multiple Neural Networks Implementation and Analysis
Machine Learning

Sharif University of Technology — *M.Sc.*

- Implementing CNN, MLP, ART, SOM neural networks and test their performances on multiple data-sets.

Fuzzy Algorithms — *Machine Learning*

Sharif University of Technology — *M.Sc.*

- A survey on fuzzy type-2 was done and different fuzzy based algorithms like takagi-sugeno or sugenu-yasukawa was implemented and analysed.

Real-Time Surveillance Camera System based on Raspberry Pi3 — *Embedded Systems*

Sharif University of Technology — *B.Sc.*

- Receiving images from the camera and apply a movement detection alogrithm then sending extracted data to a web server that displays content in a convenient front end environment.

Embedded Digital Oscilloscope — *Embedded Systems*

Sharif University of Technology — *B.Sc.*

- Design and Implement a two channel digital oscilloscope with Auto/Manual Trigger and frequency/voltage meter.

Efficient FFT Implementation using NVIDIA's CUDA API — *Parallel Computing*

Sharif University of Technology — *B.Sc.*

- Implementing FFT and High performance DFT on GPUs using a modified version of Cooley Turkey algorithm. I also implemented global memory and shared FFT kernels for different radices.

Parallel Scan Algorithm — *Parallel Computing*

Sharif University of Technology — *B.Sc.*

- Implemented parallel Scan algorithm using the Hillis algorithm and distributing the computation across multiple GPU kernels in CUDA

Behavioral Verilog Model of a Custom MIPS32 CPU — *Computer Architecture*

Sharif University of Technology — *M.Sc.*

- Implementing a customized 32 bit MIPS CPU with out of order super-scalar architecture for the sake of testing and analyzing effects of each unit and architecture on performance(cache, Buffer, simple pipeline, multi-cycle, single-cycle).

Ready-for fabrication ASIC — *ASIC/FPGA*

Sharif University of Technology — *B.Sc.*

- Designing a "ready-for fabrication ASIC (Application Specific Integrated Circuit)" and implementing a reliable transmitter and receiver in HDL on DE2-Board with the combination of Cordic, AES and Viterbi algorithm, Interleaver and the UART protocol for both transmitter and receiver.

MIPS Layout Design and Timing Analysis — *VLSI*

Sharif University of Technology — *M.Sc.*

- Design simple 8-bit MIPS CPU and do ASIC flow with cadence design compiler(layout and timing analysis).

End-to-End and Cached messaging Application in Android — *Data Networks*

Sharif University of Technology — *B.Sc.*

- Developing a general messaging android application available to any number of users within LAN, for the sake of test and analysis.then effect of latency and data traffic analyzed.

Passed Courses

M.Sc	**Computational photography and image manipulation**, Prof. Aksoy	*Computer Vision*
M.Sc	**Geometric Modelling in Computer Graphics**, Prof. Zhang	*Computer Graphics*
M.Sc	**Design/Analysis Algorithms**, Prof. Go	*Algorithm*
M.Sc	**Machine Learning**, Prof. Chen	*Machine Learning*
M.Sc	**Computer Vision**, Prof. Furukawa	*Computer Vision*
B.Sc | LAB	**Machine Learning and Computer Vision Laboratory**, Prof. Mohammad Zadeh	*Computer Vision*
B.Sc	**Introduction to Machine Learning**, Prof. Saleh Kalibar	*Machine Learning*
M.Sc	**Neural Networks**, Prof. Baqeri Shouraki	*Machine Learning*
M.Sc	**Fuzzy Systems**, Prof. Baqeri Shouraki	*Machine Learning*
B.Sc	**Real-Time Embedded Systems**, Prof. Gholam Poor	*Embedded Systems*
B.Sc	**Microprocessor Systems Design**, Prof. Haj Sadeghi	*Embedded Systems*
B.Sc	**Parallel Programming and Architectures**, Prof. Hashemi	*Parallel Computing*
B.Sc	**Advanced Programming**, Prof. Hashemi	*Parallel Computing*
B.Sc | LAB	**Python Programming Laboratory**, Prof. Hashemi	*Programming*
M.Sc	**Advanced Computer Structure**, Prof. Movahedin	*Computer Arch.*
B.Sc	**Computer Structure and Microprocessor and Laboratory**, Prof. Baqeri Shouraki	*Computer Arch.*
B.Sc	**ASIC and FPGA Chip Design**, Prof. Shabany	*ASIC/FPGA*
M.Sc	**Digital VLSI Design**, Prof. Haj Sadeghi	*VLSI*
B.Sc	**Data Communication Networks**, Prof. Pakravan	*Data Networks*
M.Sc	**Discrete Signal Processing**, Prof. Shamsollahi	*Signal Processing*

Certifications

2015 **Circuit Designing (EWB),** Technical and Professional Organization (score: 87/100) *Sari, Iran*
2016 **ICT Professional Foundation,** ERICSSON COMPANY (RMEA) *Tehran,Iran*

TA Experiences

2017 **Lab Assistant,** Analog Circuits *Prof. Shabany*
2016 **Software Teaching Class : Altium Designern,** Analog Circuits *Prof. Khorasani*
2016 **Lab Assistant,** Principal of Electrical engineering *Prof. Kaboli*
2016 **Lab Assistant,** Analog Circuits *Prof. Faez*
2016 **Homework Solving Class,** Principal of Electrical engineering *Prof. Kaboli*

Language Skills

Persian

Native

English

Fluent

- TOEFL : 111/120 (Reading 30/30 Listening 30/30 Speaking 27/30 Writing 24/30)