# Sajjad Taheri

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EDUCATION

Ph.D. Computer Science, UC Irvine, 2019 (Expected)
Thesis: *Towards engineering computer vision systems: from web to FPGAs*
M.S. Computer Engineering, University of Tehran, Iran, 2013
B.S. Computer Engineering, University of Tehran, Iran, 2010

INDUSTRY

*Google Summer of Code (GSoC) Mentor*
**OpenCV Foundation** Summer 2017
Helped with mentoring two students participating in GSoC towards preparing documentation and web based tutorials for OpenCV.

*JavaScript Engineering Intern*
**Mozilla** Summer 2015
Contributed to FireFox JavaScript JIT engine to support more ECMAScript SIMD data types and operations.
Vectorized several gl-matrix matrix and vector operations using SIMD.js API.

RESEARCH PROJECTS

**OpenCV.js:** Developed the initial version of OpenCV.js, a JavaScript binding for OpenCV library which brought hundreds image processing and computer vision functions to web browsers with near native performance. Languages used: C++, JavaScript, HTML5, Python.

**AFFIX:** Developed a framework for FPGA acceleration of high level computer vision algorithms that are modeled as directed acyclic graphs (based on OpenVX spec). It includes algorithm graph verifiaction and optimizer, and code generator that targets both CPU (OpenCV) and FPGA (OpenCL). Languages used: OpenCL(C99), Python, C++, CMake.

**WebRTCBench:** Contributed to development of a benchmark for performance evaluation of WebRTC implementations. Languages used: JavaScript, HTML5.

SKILLS AND TOOLS

- **Programming Languages**: Proficient in Python, JavaScript, C/C++, and Java, familiar with C#, Haskell, and Rust
- **Web Standards**: WebRTC, WebAssembly, SIMD.js
- **Software Development Productivity**: CMake, Doxygen, Gtest, Sphinx, Git, and GitHub
- **Office Productivity**: LaTeX and PGF/TikZ 🦆
- **Compiler Construction**: LLVM, ANTLR

- **Hardware Design and Verification**: OpenCL, Verilog, SystemC and TCL scripting
- **Machine Learning and Data Mining**: Caffe, Pytorch, Weka
- **Algorithmic Programming and Problem Solving**

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| TEACHING AND MENTORING EXPERIENCES | *Mentor* |

**UCI International Summer Undergraduate Research**   Summers 2016 and 2017

- Proposed research projects for undergraduate interns
- Supervised undergraduate students from Korean universities in completing proposed projects

*Teaching Assistant*

- Introduction to Computer Organization, UC Irvine
- Discrete Mathematics for Computer Science, UC Irvine
- Principles of Operating Systems, UC Irvine
- Data Structures, UC Irvine

SELECT CONFERENCE PAPERS

[1] S. Taheri, P. Behnam, E. Bozorgzadeh, A. V. Veidenbaum, A. Nicolau, "**AFFIX: Automatic Acceleration Framework for FPGA Implementation of OpenVX Vision Algorithms**", ACM/SIGDA Symposium on Field-Programmable Gate Arrays (FPGA) 2019.

[2] S. Taheri, A. V. Veidenbaum, A. Nicolau, N. Hu, and M. Haghighat, "**OpenCV.js: Computer Vision Processing for the Open Web Platform**", ACM Multimedia Systems (MMSys) 2018.

[3] P. Behnam, B. Alizadeh, S. Taheri, M Fujita, "**Formally analyzing fault tolerance in datapath designs using equivalence checking**", Asia and South Pacific Design Automation Conference (ASP-DAC) 2016.

[4] S. Taheri, L. Beni, A. V. Veidenbaum, A. Nicolau, R. Cammarota, Jianlin Qiu, Qiang Lu and M. Haghighat, "**WebRTCBench: Performance Assessment of WebRTC Implementations**", ACM/IEEE Embedded Systems for Real-time Multimedia (ESTIMEDIA) 2015.

MAGAZINE ARTICLES

[5] S. Taheri, A. V. Veidenbaum, A. Nicolau, N. Hu, and M. Haghighat, "**Computer Vision for the Masses: Bringing Computer Vision to the Open Web Platform**", Intel Parallel Universe Magazine, April 2018 issue. Syndicated by EE Times.

OTHER

[6] S. Taheri **Bringing the Power of SIMD.js to gl-matrix**, Mozilla Hacks Blog, 2015.

PRESENTATIONS

Improving OpenVX Application Development and Optimization Process for FPGAs Systems, Intel, Santa Clara.                                                                    May 2017

ACADEMIC SERVICES

Peer-reviewer for International Journal of Parallel Programming (IJPP)

COMMUNITY SERVICES

Co-host "Static Waves" music show on KUCI radio station            Fall-Winter 2016