Sajjad Taheri

Contact Information

3099 Donald Bren Hall,
University of California, Irvine
Irvine, CA 92617

Cell: (949)-690-3484
E-mail: sajjadt@uci.edu
Web: https://sajjadt.github.io
GitHub: https://www.github.com/sajjadt

Education

University of California, Irvine (School of ICS), Irvine, CA

P.hD. in Computer Science 2013-2019 expected

University of Tehran (School of ECE), Tehran, Iran

B.Sc. and M.Sc. in Computer Engineering 2005-2013

Professional Experiences

UC Irvine, Irvine, CA

Graduate Student Researcher Sep 2014 to present

- FPGA Acceleration of Data-flow-based Computer Vision Algorithms
- High-performance Computer Vision Processing for the Open Web Platform
- Performance Assessment of WebRTC implementations

Mozilla, Mountain View, CA

JavaScript Engineeing Intern Jun 2015 to Sep 2015

- Improved SIMD.js support for SpiderMonkey JavaScript engine
- Vectorization of gl-matrix library with SIMD.js

Teaching and Mentoring Experiences

Mentor

Google Summer of Code Summer 2017

- Helped mentoring two students participating in Google Summer of Code program towards completing their proposed projects for OpenCV organization.

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

Selected Projects

- OpenCV.js: OpenCV in JavaScript: Targets WebAssembly and supports parallel processing using SIMD and parallel workers. It also comes with proper JavaScript bindings and extensive set of online tutorials and documentation.
  Available at `https://github.com/ucisysarch/opencvjs`
- AFFIX: A tool to generate efficient heterogeneous FPGA-accelerated implementation fro OpenVX based computer vision algorithms.
- A benchmark for performance assesment of different WebRTC implementations.
  Available at `https://github.com/ucisysarch/WebRTCBench`
- SIMD.js vectorizaion for gl-matrix.
  Available at `https://github.com/toji/gl-matrix`

Skills and Tools

- **Programming Languages**: Functional:{Haskell}, Imperative: {Python, JavaScript, C/C++, Rust, and Java}
- **Web Standards**: WebRTC, WebAssembly, SIMD.js
- **Software Development Productivity**: CMake, Git and GitHub
- **Hardware Design and Verification**: OpenCL, Verilog, SystemC and TCL scripting
- **Scientific**: SAT solvers and integer programming optimization toolkits
- **Machine Learning and Data Mining**: Caffe, Pytorch, Weka
- **Office Productivity**: LaTeX and PGF/TikZ
- **Algorithmic Programming and Problem Solving** Participated in numerous ACM ICPC events

Research Interests

Programming Languages and Compilers Computer Vision Acceleration
Web Technologies

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**, J. Heo, P. Behnam, A. V. Veidenbaum, A. Nicolau, "Acceleration Framework for FPGA Implementation of OpenVX Graph Pipelines", IEEE Field-Programmable Custom Computing Machines (FCCM) 2018.

[3] **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.

[4] 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.

[5] **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

[6] **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

[7] **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

References

Alex Nicolau
Distinguished Professor
Computer Science Department
UC Irvine
✉ nicolau@ics.uci.edu

Alex Veidenbaum
Professor
Computer Science Department
UC Irvine
✉ alexv@ics.uci.edu

Moh Haghighat
Senior Principal Engineer
Intel Corporation
✉ mohammad.r.haghighat@intel.com