Giulio Marin

Senior Computer Vision Engineer

Personal

Contacts	giulio.marin@me.com
Nationality	Italian, USA H1-B visa
Website	giuliomarin.github.io

Work Experience

Dec 2017 – Present **Senior Computer Vision Engineer**
Aquifi, Inc., Palo Alto, CA
Leading a team that focuses on delivering accurate data from the depth camera. Also working on anomaly and defect detection combining 3D geometry and image based deep learning techniques.

Oct 2014 – Nov 2017 **Computer Vision R&D Engineer**
Aquifi, Inc., Palo Alto, CA
Member of the R&D group of 4 people that designed low cost and low power active stereo cameras that later became the core product of the company and led to Series C financing. Developed core algorithms and applications with engineering group using 3D information from color and depth cameras. Applications include 3D reconstruction, AR/VR, dimensioning, counting, objects identification and inspection. Developed framework for defect detection and object classification using latest deep learning techniques. Optimized algorithms to run efficiently on embedded systems with emphasis on speed and accuracy. Demoed products and prototypes to potential customers.

Sep 2013 – Sep 2014 **Consultant**
Aquifi, Inc., Palo Alto, CA
Designed and developed computer vision algorithms and demos for touchless human/computer interaction with applications in remote interaction and privacy monitoring. Optimized code for low CPU utilization and low latency. Assisted in design, development and testing of application API and SDK using industry best practices. Implemented state of the art computer vision and machine learning algorithms.

2013 Jul–Sep **Intern (R&D group)**
Imimtek, Inc. (now Aquifi Inc.), Sunnyvale, CA
Worked in a team with other computer vision PHDs to define the company's future products. Produced design that was then implemented in engineering. Developed algorithms and demos for hand and face tracking with low cost vision sensors.

Education

2014–2017 **Ph.D. in Information Engineering**, University of Padova, Italy.
Thesis: *3D data fusion from multiple sensors and its applications*.
Advisor: Prof. Pietro Zanuttigh

2011–2013 **M.Sc. in Telecommunication Engineering**, University of Padova, Italy.
Thesis: *Confidence Estimation of ToF and Stereo Data for 3D Data Fusion*.
Advisor: Prof. Pietro Zanuttigh.
Grade: 110/110 cum laude.

2008–2011 **B.Sc. in Information Engineering**, University of Padova, Italy.
Thesis: *Linear Blend techniques for hand modeling from laser scanner data*.
Advisor: Prof. Pietro Zanuttigh.
Grade: 110/110.
"Best Android App" award for Embedded Systems class.

Technical skills

Advanced	C++, Python, Matlab, OpenCV, TensorFlow, Git, XCode, Microsoft Visual Studio
Intermediate	Java, C, OpenGL, SIMD, Eclipse, HTML/CSS, Linux, Autodesk AutoCAD, Fusion 360

Basic	Objective-C

Other skills

Team player	My experience in team dynamics ranges from fast-paced startups to leading competitive soccer teams. During my PHD, I worked closely with faculty to share research best practices with international visitors. I enjoy mentoring other students and deliver a series of lectures each year in computer vision to Master's candidates.
Project management	I like to work on challenging problems, propose and quickly prototype possible solutions, as well as product oriented longer term projects. I organize projects with parallel workstreams with an emphasis on building scalable code. During my PHD I supervised 10 students on their thesis and research projects, providing coaching on how to define problems and efficiently plan actual solutions.

Interests

Academic	I'm a reviewer and TPC member for research publications ICIP, ICME and IEEE Signal Processing Letters. I also follow online courses on economics and business management. In the past I've tutored undergraduate students in math and physics.
Projects	I enjoy developing electro-mechanical devices and have built a solar concentrator and a rotating support for a 3D laser scanner.
Sports	I played competitive soccer in an Italian youth league for 12 years. Now I regularly run, mountain bike, hike, rock climb and ski.

Languages

English	Fluent
Italian	Native speaker

Publications

patents	– G. Marin, A. Rafii, C. Dal Mutto, "System and method for three-dimensional scanning and for capturing a bidirectional reflectance distribution function", Aquifi, Inc., US10055882B2, 2018.
	– F. Peruch, G. Murali, G. Marin, A. Rafii, K. Tieu, "System and method for assisted 3D scanning", Aquifi, Inc., US9912862B2, 2017.
	– A. Hazeghi, C. Dal Mutto, G. Marin, F. Peruch, M. Stoppa, A. Rafii, "Systems and methods for compact space-time stereo three-dimensional depth sensing", Aquifi, Inc., US9826216B1, 2016.
	– A. Hazeghi, G. Marin, F. Peruch, C. Dal Mutto, A. Rafii, "Systems and methods for reducing z-thickness and zero-order effects in depth cameras", Aquifi, Inc., US9503708B2, 2016.
	– C. Dal Mutto, G. Marin, A. Rafii, T. Zuccarino, "Systems and Methods for Implementing Head Tracking Based Graphical User Interfaces (GUI) that Incorporate Gesture Reactive Interface Objects", Aquifi, Inc., US9507417B2 A1, 2015.
books	– P. Zanuttigh, G. Marin, C. Dal Mutto, F. Dominio, L. Minto, G. M. Cortelazzo, "Time-of-Flight and Structured Light Depth Cameras: Technology and Applications", 1st ed., Springer, 2016.
book chapters	– F. Dominio, G. Marin, M. Piazza, P. Zanuttigh, "Features descriptors for depth-based hand gesture recognition", Computer Vision and Machine Learning with RGB-D Sensors, Springer, 2014.
journals	– Gianluca Agresti, Ludovico Minto, Giulio Marin, Pietro Zanuttigh, "Stereo and ToF data fusion by learning from synthetic data", Information Fusion, Elsevier, 2018.
	– G. Marin, F. Dominio, P. Zanuttigh, "Hand Gesture Recognition with Jointly Calibrated Leap Motion and Depth Sensor", Multimedia Tools and Applications, Springer, 2015.
conferences	– G. Agresti, L. Minto, G. Marin, P. Zanuttigh, "Deep Learning for Confidence Information in Stereo and ToF Data Fusion", ICCV Workshop: 3D Reconstruction meets Semantics, Venice, Italy, 2017.
	– G. Marin, P. Zanuttigh, S. Mattoccia, "Reliable Fusion of ToF and Stereo Depth Driven by Confidence Measures", European Conference on Computer Vision, Amsterdam, The Netherlands, 2016.
	– L. Minto, G. Marin, P. Zanuttigh, "3D Hand Shape Analysis for Palm and Fingers Recognition", Automatic Face and Gesture, Ljubljana, Slovenia, 2015.
	– G. Pozzato, S. Michieletto, E. Menegatti, F. Dominio, G. Marin, L. Minto, S. Milani, P. Zanuttigh,

"Human-Robot Interaction with Depth-Based Gesture Recognition", Real Time Gesture Recognition for Human-Robot Interaction Workshop, Padova, Italy, 2014.

- G. Marin, F. Dominio, P. Zanuttigh, "Hand gesture recognition with Leap Motion and Kinect devices", IEEE International Conference on Image Processing, Paris, France, 2014.
- F. Dominio, M. Donadeo, G. Marin, P. Zanuttigh, G.M. Cortelazzo, "Hand gesture recognition with depth data", ACM Multimedia Artemis Workshop, Barcelona, Spain, 2013.
- G. Marin, M. Fraccaro, M. Donadeo, F. Dominio, P. Zanuttigh, "Palm area detection for reliable hand gesture recognition", IEEE International Workshop on Multimedia Signal Processing (MMSP), Pula, Italy, 2013.

theses
- G. Marin, Advisor Prof. P. Zanuttigh, "3D data fusion from multiple sensors and its applications", PhD School of Information Engineering, University of Padova, Italy, 2017.
- G. Marin, Advisor Prof. P. Zanuttigh, "Confidence estimation of ToF and stereo data for 3D data fusion", Laurea magistrale in Telecommunication Engineering, University of Padova, Italy, 2013.
- G. Marin, Advisor Prof. P. Zanuttigh, "Modelli deformabili della mano a partire da dati acquisiti tramite laser scanner", Laurea triennale in Information Engineering, University of Padova, Italy, 2011.

Palo Alto, January 21, 2019