

Davide Lorenzo Asnaghi | M.Eng.

2299 Piedmont Avenue, International House, Room Y30, Berkeley, CA 94720, USA

☎ +1 510 (944) 9620 • ✉ davide@atelierasnaghi.it • in [d-asnaghi](#)

Education

University of California, Berkeley

Berkeley, USA

Master of Engineering, Bioengineering, GPA: 3.88

2018 – 2019

- o Graduate researcher at BEST Lab: embedded firmware development for physiological data acquisition and processing (ECG, EMG)

The Hong Kong University of Science and Technology (HKUST)

Hong Kong, HK

Bachelor of Engineering, Biomedical Engineering, GPA: 3.85

2017 – 2018

- o Undergraduate researcher at HKUST Robotics institute: embedded engineering for robotics systems, CAN bus communication

Politecnico di Milano

Milan, IT

Bachelor of Science, Biomedical Engineering, GPA: 109/110 (3.96)

2015 – 2017

- o Undergraduate research associate at NECST Lab: FPGA design applied to biomedical science, hardware accelerated image processing

Publications

Mechatronics enabling kit for 3D printed hand prostheses

Delft, NL

Author: Asnaghi D, Wong TH, Leung W, International Conference on Engineering Design

2019

Awards and Achievements

Big Ideas, Hardware for Good: Modular open source electronic development kit for medical devices, category winner May 2019

DJI Robomaster: Mechatronics design for robotics, international competition in Shenzhen China, first place Jul 2018

Hack@NECST: Developed a heart rate (ECG) analysis using deep convolutional neural networks on FPGA, second place Jul 2017

Research

Embedded firmware: 'Project Sparthan: Open source prosthetics development kit'

Jan 2018 - Current

- o Sparthan aims to provide children with responsive, low-cost, 3D printed prosthetic hands controlled by muscles' signals (EMG).
- o Created schematics and board layout for custom printed circuit board (PCB) in Altium Designer to reduce the device's footprint.
- o Developed a feed-forward neural network architecture in C++ running on STM32 micro-controller for hand gesture classification.

Embedded firmware: 'Beyond Hands: 3D printed, application specific prostheses'

Sep 2018 - May 2019

- o Beyond Hands is an initiative of BEST lab at the University of California Berkeley, aimed at developing prosthetics for musicians.
- o Designed the firmware for an electronic, PID controlled variable stiffness actuator for intuitively changing the drumming rhythm.

Embedded machine learning: 'An automatic ML-based characterization of lung cancer from PET and CT'

Aug 2018 - Oct 2018

- o Development of an advanced medical imaging analysis pipeline in collaboration with NECST Lab and Humanitas hospital in Milan.
- o Designed an embedded machine learning approach using hardware accelerated classification on FPGA platform.
- o Presented results and our python based prototyping framework as a keynote speaker at the Xilinx Design Forum in San Jose (CA).

Work Experience

Eko Devices

Berkeley, USA

Firmware engineer, R&D for new products

Apr 2019 – Present

- o Responsible for the firmware development of Eko's new smart stethoscope model, based on the Cypress PSoC6 BLE microcontroller.
- o Implemented Bluetooth Low Energy (BLE) Over-The-Air (OTA) updates and physiological Digital Signal Processing (DSP) features.

Berkeley Emergent Space Tensegrities Lab.

Berkeley, USA

Researcher, embedded engineering, signal processing

Aug 2018 – Apr 2019

- o Lead designer of sensors for physiological data collection, focused on the integration of hardware, firmware, and validation studies.
- o Created a customized MicroPython firmware on STM32 to allow easy modification of the core parameters by the rest of the team.

DJI, HKUST Robotics Institute

Hong Kong, HK

Researcher, embedded engineering, CAN Bus communication and sensor fusion

Sep 2017 – Jun 2018

- o Developed a modular C library for the control system of four motors robotic platforms, to be deployed in drones and ground robots.
- o Designed a sensor-fusion based distance measurement system, using a Kalman filter with time of flight and infrared sensors.

Pluteus S.r.l.s

Milan, IT

Firmware engineer

Jan 2016 – Aug 2017

- o Engineering lead for an early stage hardware startup focused on peer-to-peer object sharing based on NFC authentication.
- o Designed the device's embedded architecture based on the STM32 platform controlling electromechanical devices and sensors.

Skills

Programming languages: git, C, C++, Python, Matlab, LabView, Arduino, TeX, Verilog, VHDL **CAD:** Solidworks, Fusion360

Languages: Italian (Native), English (Fluent: TOEFL 117/120), Chinese Mandarin (Basic proficiency, HSK I 192/200)