

Davide Asnaghi | M.Eng. Bioengineering

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

Master of Engineering, Bioengineering, GPA: 3.78

- Researcher at BEST Lab for prostheses development

Berkeley (CA), USA

2018 – 2019

The Hong Kong University of Science and Technology (HKUST)

Bachelor of Engineering, Biomedical Engineering, GPA: 3.85

- Associate at HKUST Robotics institute

Hong Kong, HK

2017 – 2018

Politecnico di Milano

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

- Undergraduate research associate at NECST Lab for FPGA design applied to biomedical science

Milan, IT

2015 – 2017

Awards and Achievements

Mechatronics design for DJI's Robomaster international competition: first place

Directed a five members team for developing the internal CAN bus communication architecture in C language

Hong Kong, HK

Jul 2018

Hack@NECST hackathon: second place

Developed a heart rate (ECG) analysis architecture using deep convolutional neural networks on FPGA platform

Milan, IT

Jul 2017

Research Experience

Bio-mechatronics: 'Project Sparthan: Open source prosthetics development kit'

Jan 2018 - Current

- Sparthan aims to provide children with responsive, low-cost, 3D printed prosthetic hands controlled by muscles' signals (EMG).
- Engineered an electronic sensing and actuation module to allow a firm grasp of objects without breaking them.
- Developed a feed-forward neural network algorithm architecture in C++ for low-latency hand gesture classification.
- Finalist project in the Switch2Product competition in Milan, selected for full time mentoring by Deloitte Consulting
- Current finalist project in the U.C. Berkeley's Big Ideas contest, hardware for good category

Bio-mechatronics: 'Beyond Hands: 3D printed, application specific prostheses'

Sep 2018 - Current

- Beyond Hands is an initiative of BEST lab at the University of California Berkeley, aimed at developing prosthetics for musicians.
- Designed an electronic, EMG controllable variable stiffness actuator for intuitively controlling the drumming rhythm.
- CAD Modeled a universal rapid attachment mechanism for the drumming module, which interfaces directly with the EMG sensors.
- Designed and completed a validation study with five subjects for physiological data collection and prototype testing.

Paper based microfluidics: 'Quantifiable paper-based microfluidic device for urinalysis'

Sep 2018 - Dec 2018

- Design and fabrication of a cost-effective paper-based device for quantitative glucose analysis in urine.
- Developed a novel approach for colorimetric reagent deposition in the microfluidic chambers using ultrasound capillary mixing.
- Fabricated prototypes of the device using a non-standard photolithography method compatible with a paper substrate.

Flexible microfluidics: 'Wearable microfluidic device for sequential measurement of iron levels in sweat'

Sep 2018 - Dec 2018

- Design and fabrication of a flexible wearable to detect and mitigate the risk of iron-induced anemia in women.
- Created a simulation model (COMSOL Multiphysics) of the device to characterize flow through bubble-based type valves.
- Manufactured the device using a flexible substrate (PDMS) and tested flow using input from synthetic pores

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

Jun 2018 - Oct 2018

- Development of an advanced medical imaging analysis pipeline in collaboration with NECST Lab and Humanitas hospital in Milan.
- Designed a white-box machine learning approach using python with random forest classification on FPGA.
- Presented results as a keynote speaker at the Xilinx Design Forum in San Jose (CA).

Work Experience

Pluteus S.r.l.s

Embedded software developer

Milan, IT

Jan 2017 – Aug 2018

- Pluteus is a startup company founded in January 2017, aimed at creating a student friendly object sharing platform.
- Designed the device's embedded architecture on an STM32 micro-controller controlling electromechanical devices and sensors.

Skills

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

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