

Alban Cobi

MECHANICAL R&D ENGINEER · ENGINEERING CONSULTANT

Boston, MA, USA

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OBJECTIVE

Self-driven, pragmatic engineer with 8+ years hands-on engineering experience and 3+ years research experience specializing in analysis and design of electro-mechanical and fluids systems. Looking to leverage multidisciplinary skills in a research and development position. Excited about encountering and solving difficult, system-level problems and learning new technologies and tools as needed.

EDUCATION

Massachusetts Institute of Technology

Cambridge, MA, USA

M.S. IN MECHANICAL ENGINEERING

May 2020

- Thesis title: "A suction-based reversible attachment and locomotion mechanism for an underway vessel hull cleaning and inspection robot"

B.S. IN MECHANICAL ENGINEERING

June 2012

- Thesis title: "Design of a carbon fiber suspension system for FSAE applications"

EXPERIENCE

Freelance Design & Engineering Consulting

Boston, MA USA

MECHANICAL ENGINEER

April 2020 - Present

- Specify and source actuators, sensors and breakout PCBs and design and assemble circuits for electro-mechanical products.
- Design mechanical parts to interface with electrical components and actuators.
- Produce engineering drawings for design reviews and outsourcing part fabrication.

MIT Hatsopoulos Microfluidics Lab

Cambridge, MA, USA

RESEARCH ASSISTANT

2017 - Present

- Research, model, and analyze reversible underwater attachment systems using first principles for robotic vessel hull cleaning applications.
- Conduct separation experiments between elastomers and surfaces in the presence of different newtonian fluids and surface microstructures to determine new attachment scaling relationships.
- Supervise, guide, and mentor undergraduate students, defining research projects and overseeing thesis progress.
- Disseminate research findings through publications and presentations.

I Square Systems

Middletown, RI, USA

MECHANICAL ENGINEER

2015 - Present

- Design and fabricate mechanical assemblies to interface with electrical components for underwater applications.
- Design and fabricate fixtures for ASTM vibration and shock testing.
- Produce engineering drawings for design reviews and for outsourcing part fabrication.

MIT Department of Mechanical Engineering

Cambridge, MA, USA

TEACHING ASSISTANT

2019 - Present

- Assist in teaching hands-on engineering capstone courses Engineering Systems Design & Development I and II.

LAB INSTRUCTOR, MENTOR

2012 - 2013

- Led team of 5 undergraduate students in designing and prototyping "Dreamstep", an interactive floor puzzle that lights up when stepped on.
- Mentored team of 18 undergraduate seniors in Mechanical Engineering Product Design capstone course in conceptualizing, designing and fabricating "StormShield", a bicycle rain shield.

Optimus Ride

Boston, MA, USA

MECHANICAL ENGINEER

2016 - 2017

- Designed, prototyped and integrated electromechanical systems on autonomous electric vehicles.
- Led hardware project planning and development for fleet of 5 vehicles.
- Supervised 5 summer engineering interns.

MIT Edgerton Center

Cambridge, MA, USA

INSTRUCTOR, FRESHMAN ADVISOR

2012 - 2016

- Advised 100+ undergraduate and high school students on hands-on electro-mechanical projects involving microcontrollers, actuators, and electronic circuits.
- Trained students on using rapid prototyping machines and multiple 2D and 3D CAD software.
- Led and taught summer Engineering Design Workshop to 30 high school students.
- Co-taught hands-on Engineering, Art, and Science advising seminar to class of 25 first-year undergraduate students.
- Designed coursework and professional development workshops for middle school STEM summer program.

MIT Museum Studio

Cambridge, MA, USA

MECHANICAL ENGINEERING CONSULTANT

2015

- Assisted studio director, technician, and 10 undergraduate students with engineering design of 6 x 30 foot Museum exhibit.
- Designed 2 motorized lift mechanisms: chain-driven elevator and archimedes screw for lifting 1 lb. steel balls.
- Taught students mechanical design, fabrication and finishing methods, and how to appropriately choose actuators.

MIT Formula SAE Team

Cambridge, MA, USA

UNDERGRADUATE RESEARCHER, TEAM MEMBER

2011-2012

- Researched and designed carbon fiber suspension system for 2012 formula car.
- Designed, CAD modeled and constructed clutch system for 2011 formula car.
- Conducted experimental pull tests of formula car carbon fiber tube suspension members and analyzed stress, strain, and fracture data.
- Designed carbon fiber suspension system of FSAE formula-style car to reduce overall weight of car.

Vicor

Andover, MA, USA

MECHANICAL ENGINEERING INTERN

Summer 2011

- Designed, CAD modeled and produced engineering drawings of fixtures for manufacturing of PCBs.
- Conducted probe-tack experiments and tested adhesive strength of different adhesives in SMT applications.

MIT Rohsenow Heat & Mass Transfer Lab

Cambridge, MA, USA

UNDERGRADUATE RESEARCHER

Spring 2011

- Collected thermal transport properties of heat transfer fluids in solar trough applications.
- Analyzed data and properties of heat transfer fluids for optimization of energy output.
- Collaborated with and presented visual data and reports to team of graduate students.

PUBLICATIONS

A. Cobi, et. al., A suction-based reversible attachment and locomotion mechanism for a surface crawling robot (in preparation)

A. Cobi, et. al., Design of a reconfigurable quality assurance phantom for verifying the spatial accuracy of radiosurgery treatments for multiple brain metastases. ASME Journal of Medical Devices, 2019

LEADERSHIP & AWARDS

- Presenter and Panelist at Making & Rapid 3D Fabrication at MIT & Beyond xTalk, 2015
- MIT Gordon Engineering Leadership Program, Graduate, 2010-2012
- The Peter and Sharon Fiekowsky Award For Excellence in Teaching at ESG, MIT, 2012
- MIT Sigma Phi Epsilon Fraternity, VP of Operations, 2011-2012
- Captain and Cofounder of FIRST Robotics Team 2043, John D. O'Bryant High School, Boston, MA, 2006-2008
- Harvard University Crimson Summer Academy Scholarship, Awarded to top 30 students from Boston area high schools, 2005-2008

SKILLS

Hardware	Lathe, Mill, Router, 3D Printer, Laser Cutter, Water Jet, MIG/TIG Welding, Wood working
Electronics	Oscilloscope, Arduino, Basic Electronics
Software	Proficient in SolidWorks, Working knowledge of CorelDraw, Photoshop and Illustrator
Programming	Working knowledge of MATLAB, LaTeX, and Bash/Linux
Languages	English (fluent), Albanian (fluent), Spanish (intermediate), Greek (beginner)