

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 modeling, 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

CANDIDATE FOR PHD IN MECHANICAL ENGINEERING

Expected May 2022

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

Alban Cobi Design & Engineering

Boston, MA USA

FREELANCE MECHANICAL ENGINEER

April 2020 - Present

- Specify and source actuators and sensors for electro-mechanical products.
- Design, fabricate and/or outsource mechanical assemblies 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 five 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 five vehicles.
- Supervised five 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 arduinos, 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 ten undergraduate students with engineering design of 6 x 30 foot Museum exhibit.
- Designed two 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.
- Wrote BS thesis on the design of a formula car carbon fiber suspension system.

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

- Supervised two MIT students on their undergraduate theses, 2018-2020
- 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	SolidWorks, CorelDraw, Photoshop, Illustrator
Programming Languages	MATLAB, C++, LaTeX, Bash/Linux
	English (fluent), Albanian (fluent), Spanish (intermediate), Greek (beginner)