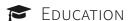
Clark TEEPLE

Postdoctoral Fellow | Harvard Microrobotics Lab, Harvard University

ⓒ cbteeple.com ♀ github.com/cbteeple ② cbteeple@gmail.com ♀ Based in Somerville, MA, USA

I am a roboticist with experience designing "gentle" end effectors, and a passion for mechatronics and system integration. I am interested in applying my creative engineering mindset to solve exciting, real-world problems.



Nov. 2021 PhD in Engineering Sciences (Robotics) – Harvard University, Cambridge, MA

> Dissertation Title - Design Principles for Improving Precision and Dexterity of Soft Robotic Hands

> NSF Graduate Research Fellow

May 2018 MS in Engineering Sciences (Robotics) – Harvard University, Cambridge, MA

May 2016 BSE in Mechanical Engineering – University of Michigan, Ann Arbor, MI

> 3.90 GPA, Summa Cum Laude



Mechanical Design Fusion 360, Solidworks, OnShape, Eagle CAD (Electronics), Basic Machining, 3D Printing,

Laser Cutting, Design for Manufacturing

Programming Python (including NumPy, SciPy, and Pandas), C++ (embedded), MATLAB, Linux Robotics Frameworks Robot Operating System (ROS), Movelt!, PyBullet Physics, UR5e Robot Arm



2016-2021 | PhD Candidate

HARVARD MICROROBOTICS LAB – Harvard University, Cambridge, MA

Advisor: Prof. Robert Wood

- > Lead the development of a dexterous soft robotic hand platform capable of in-hand manipulation, and developed relevant performance metrics to quantify in-hand manipulation.
- > Investigated several factors in the design of soft robotic hands (friction, compliance, finger arrangement, etc.) leading to enhanced capabilities in both grasping and in-hand manipulation.
- > Improved the precision grasping capabilities of soft grippers by developing finger designs that fully-utilize passive compliance.
- > Studied the role of gripper compliance in manipulating fabrics and other thin, flexible objects.
- > Developed Ctrl-P %, a modular, high-bandwidth, smooth pressure control system for soft robots. This consists of a custom PCB, firmware, and ROS package, and is actively supporting my own research projects along with and several others.
- > Developed calibration protocols for building and controlling physically-accurate soft robots in simulation as part of the development team for the SoMo (Soft Motion) Simulation Framework %.
- > Built an integrated light intensity measurement system for soft optical sensors consisting of a custom PCB, firmware, and MATLAB control interface.
- > Supervised two Masters theses, and three undergraduate projects.

Mechanical Design (Simulation) Embedded Programming (System Integration) (ROS) (Python) (C++)

2015–2016 | Undergraduate Research Assisant

VIBRATION AND ACOUSTICS LABORATORY: MICROSYSTEMS – University of Michigan, Ann Arbor, MI *Advisor: Prof. Kenn Oldham*

- > Studied locomotion of small-scale legged robots with multiple sets of high-frequency elastic legs.
- > Designed, built, and characterized several robot prototypes using 3D printing.
- > Contributed to a design-invariant dynamic model of leg and body behavior.

Mechanical Design 3D Printing Dynamic Modeling

Summer 2015

Engineering Intern

MIT LINCOLN LABORATORY - Lexington, MA

> Developed control systems and a user interface to automate the operation of a mobile mass spectrometry platform. This platform was used to improve training of canines for explosives detection.

System Integration UI/UX Design LabVIEW

CLARK TEEPLE - RESUME 1

★ Mentorship & Teaching

2021-2022	ľ	Advisor/Supervisor – Undergraduate Senior Thesis, Harvard Microrobotics Lab
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2020-2021 * Advisor/Supervisor – Two Undergraduate Research Projects, Harvard Microrobotics Lab

2019-2020 * Advisor/Supervisor – Visiting Masters Student Thesis (EPFL), Harvard Microrobotics Lab

2018-2019 * Advisor/Supervisor – Visiting Masters Student Thesis (ETH-Z), Harvard Microrobotics Lab

SELECTED PUBLICATIONS

C.B. Teeple, J. Werfel, and R.J. Wood, "Multi-Dimensional Compliance of Soft Grippers Enables Gentle Interaction with Thin, Flexible Objects", *IEEE International Conference on Robotics and Automation (ICRA)*, 2022 (In-Review)

C.B. Teeple, B. Aktaş, M.C. Yuen, G.R. Kim, R.D. Howe, and R.J. Wood, "Controlling Palm-Object Interactions via Friction for Enhanced In-Hand Manipulation", *IEEE Robotics and Automation Letters*, 2022

C.B. Teeple, R.C. St. Louis, M.A. Graule, and R.J. Wood, "The Role of Digit Arrangement in Soft Robotic In-Hand Manipulation", *IEEE International Conference on Intelligent Robots and Systems (IROS)*, 2021

M.A. Graule, C.B. Teeple, T.P. McCarthy, G.R Kim, R.C. St. Louis, and R.J. Wood, "SoMo: Fast and Accurate Simulations of Continuum Robots in Complex Environments", IEEE International Conference on Intelligent Robots and Systems (IROS), 2021

C.B. Teeple, G.R. Kim, M.A. Graule, and R.J. Wood, "An Active Palm Enhances Dexterity of Soft Robotic In-Hand Manipulation", *IEEE International Conference on Robotics and Automation (ICRA)*, 2021

C.B. Teeple, T.N. Koutros, M.A. Graule, and R.J. Wood, "Multi-Segment Soft Robotic Fingers Enable Robust Precision Grasping", International Journal of Robotics Research, 2020

CLARK TEEPLE - RESUME 2