Trevor J. Chan

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Education

Yale University *New Haven, CT*

Bachelor of Science, Engineering Sciences Mechanical | Bachelor of Arts, Architecture *2016 - 2020*

- Graduated with distinction in the major, B.S. Engineering Sciences, GPA: 3.98
- Graduated with distinction in the major, B.A. Architecture, GPA: 3.46

Experience

Multiscale Mechanobiology Lab *New Haven, CT*

Research Assistant *Jun. 2020 - Present*

- Built and trained a convolutional neural net to identify single cells in phase contrast images and characterize single cell and cell network morphologies. Developed an original set of algorithms for use in graph based analysis of cultured cell networks.
- Coauthored *The Morphological Signatures Related to Heterogeneous Motility of Cancer Cells Under Constraints*, DOI: https://doi.org/10.1016/j.bpj.2019.11.3272

Mechanical Engineering Thesis *New Haven, CT*

Adv. Dr. Michael Mak *Jun. 2019 - May 2020*

- Examined heterogeneous mechanical behaviors of cancer cells originating from the same tumor. Designed, fabricated, and utilized an original microfluidic device to isolate single cells, measure their deformability, and facilitate their expansion into a monoclonal lineages.

Architecture Thesis *New Haven, CT*

Adv. Gavin Hogben, Steven Harris *Jan. 2020 - May 2020*

- Tasked with designing a desert waystation for American itinerant workers, proposed an algorithmic site generation scheme and a corresponding adaptive building scheme. Site generation factors in occupant requirements and topography to iteratively produce building layouts tailored to the individuals and environment. Research included travel to Imperial County CA and dialogue with workers, journalists, and public officials.

Adjustable Angle Orthopedic Retractor *New Haven, CT*

Lead Engineer *Jan. 2020 - Present*

- Collaborated with orthopedic surgeons at Yale New Haven Hospital to design a novel surgical retractor for use in treating fractures in the foot and ankle. Team member responsible for device design, CAD modeling, and finite element stress analysis. Recipient of the Rothberg Catalyzer Prototype Fund, recipient of the Connecticut Bioscience Pipeline Fund.

Yale Center for Engineering, Innovation, and Design *New Haven, CT*

Design Aide *Summer 2018*

- Advised on student projects and maintained CEID hardware, software, and inventory.

Galaxy Robotics Summer Camps *East Bay, CA*

Founder, Manager, Teacher *2011-2016*

- Cofounded Galaxy Camps with the aim to teach robotics, computer programming, and computer animation to students ages 8-14. Coordinated with locations in Oakland and Berkeley CA and negotiated contracts to host a variety of science/engineering-themed summer camps and after-school classes.

Skills

Programming	Python, C/C++, JAVA, Matlab, PyTorch, Detectron2, HTML/CSS/JavaScript, Latex
CAD/Modeling	AutoCAD, SolidWorks, Rhinoceros, Fusion360, Abaqus
Graphic	Photoshop, Illustrator, InDesign, Blender
Laboratory	Mammalian tissue culture, microfluidic fabrication and use, confocal imaging, deep learning image analysis
Fabrication	Extensive wood shop and metal shop experience, welding, 3D printing, soldering and basic circuitry

Extracurricular Activity

Mammalian Quadruped Robot *Oakland, CA*

Engineer *2020-Present*

- Member of an independent team building and testing a 12 degree-of-freedom quadruped robot capable of emulating canine gait. Use of a novel meta learning approach, combined with simulated physics environments, to train a robust control algorithm. Responsible for CAD design, 3D printing, and assembly of the physical robot including electronics, and for modeling of the virtual robot.

Yale Undergraduate Solar Decathlon Team *New Haven, CT*

Treasurer, Designer *2018-2019*

- Founding member and treasurer of the Yale team competing in the US Department of Energy 2018-2019 Solar Decathlon Design Challenge. Submitted a proposal for the renovation of a Puerto Rican elementary school with a focus on sustainable energy and environmental resilience in the aftermath of Hurricane Maria. Managed organization finances and fundraising, participated in the research, creation, and presentation of the competition submission. One of 8 finalist submissions in the 2018-2019 season.

Yale Undergraduate Aerospace Association *New Haven, CT*

Team Co-lead and participant *2016-2018*

- Project co-lead of the Yale Undergraduate Aerospace Association solar plane project. Designed, built, and tested a balsa wood RC plane outfitted with lightweight solar cells
- Team member on the Yale Undergraduate Aerospace Association turbojet engine project responsible for designing, machining, and welding the combustion chamber.

Honors & Awards

2020	**Connecticut Bioscience Pipeline Fund**, Winner of the Bioscience pipeline fund providing $30,000 towards the continued development of a novel biomedical device	*Connecticut*
2020	**Rothberg Catalyzer Prototype Fund**, Winner of the Prototype Fund funding initial development of a novel biomedical device	*Connecticut*
2019	**Solar Decathlon Design Challenge Finalist**, Coauthor of one of 8 finalist submissions invited to the Solar Decathlon Design Challenge 2019 conference	*Golden, CO*
2018	**Dean's Fellowship in the Sciences**, Recipient of the Dean's Research Fellowship in the Sciences funding Summer research at Yale University	*New Haven, CT*
2017	**Light Fellowship Recipient**, Recipient of the Richard U. Light Fellowship funding year 3 language study in Beijing	*New Haven, CT*