

Harrison Khoo

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Education

- Johns Hopkins University** August 2019 - Expected May 2024
Ph.D. Student in Mechanical Engineering
- University of California, Berkeley** August 2015 - December 2018
Bachelor of Science in Bioengineering

Work Experience

- Johns Hopkins University - Baltimore, Maryland** August 2019 - Present
Ph.D. Student
 - Working in Professor Soojung Claire Hur's research lab to develop microfluidic tools for cancer therapeutics
- Correlia Biosystems - Berkeley, California** January 2019 - May 2019
Engineering Intern
 - Spearheaded automation of experiments on a liquid handling robot to rapidly detect and quantify protein samples
 - Developed procedure to chemically functionalize microfluidic chip in a more uniform and automated fashion
 - Wrote Python scripts to significantly reduce data analysis time from hours to seconds and compile final images
- University of California, San Francisco - San Francisco, California** March 2016 - May 2019
Undergraduate Researcher
 - Independently investigated DNA Holliday junctions under Dr. Sy Redding to visualize this structure in real time
 - Optimized photolithography process of lab's "DNA curtain" microfluidic chip to extend device lifetime
 - Built budget in-house photolithography equipment to improve accessibility of microfabrication techniques
- ETH Zurich - Zurich, Switzerland** May 2018 - August 2018
ThinkSwiss Scholar
 - Focused on isothermal amplification method for ultrasensitive miRNA detection under Professor Andrew deMello
 - Experimented with a PDMS microfluidic assay for digital readouts to accurately quantify miRNA concentration
 - Founded a writing subgroup within the lab to write research highlights to boost scientific understanding

Projects

- De-differentiation of Myotubes into Myoblasts** October 2018 - December 2018
 - Explored using a cocktail of growth factors to promote de-differentiation of wild type myotubes into myoblasts
- Bachxter: A Piano Playing Robot** October 2018 - December 2018
 - Programmed a 7-DoF Baxter robot to recognize a keyboard's location, orient its gripper, and play a series of notes
- 3D Printed Microfluidic Droplet Generator** April 2018 - May 2018
 - Created a T-junction droplet generator capable of producing 50pL droplets to show Form 2 3D printer capabilities
 - Systematically tested multiple geometries, dimensions and flow rates to maximize monodispersed droplet generation

Activities

- University of California, Berkeley - Berkeley, California** August 2018 - December 2018
BioE 121 Undergraduate Tutor
 - Served as the first undergraduate tutor for BioE 121: BioMEMS and Medical Devices under Professor Aaron Streets
 - Hosted office hours for students to clarify fundamental questions about course material and assist with homework

Skills

Lithography: Photolithography, Soft Lithography, Reactive Ion Etching, TIRF Microscopy
Molecular Biology: Phage Packaging, Bacterial Transformation, Cell Culture, PCR, Gel Electrophoresis
Software: Python, Java, Solidworks, AutoCAD, Adobe Illustrator, Microsoft Office

Distinctions

2019-2020 Gregory Fellow in Engineering, 2018 ThinkSwiss Scholarship Fellow, 2017 SURF Rose Hill Experience Research Fellow, Bioengineering Honor Society