

# Derek Lam



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github: /acrylic-origami

& /ultra-robosoccer

## Work experience

### Senior Device Engineer

#### Microchip Inc. FPGA

2019 - present | San Jose, CA, USA

FPGA process enhancement & test platform integration. Defect detection & physical failure analysis. Radiation hardening & experimental design.

### Researcher

#### MannLab Canada

2019 | Toronto, ON, Canada

Images from human vision. EEG computer interfaces. Electromagnetic field & sensor visualization, veillance fields.

### Researcher

#### CSIRO, Oceans & Atmosphere

2018 | Hobart, TAS, Australia

Motion analysis suite for instrumented buoys. Mooring line failure analysis. Statistics of ocean surface conditions.

### User Experience Engineer

#### BlueDot

2017 | Toronto, ON, Canada

Web data interface design + full-stack implementation. Elastic + SQL database design. EDIT Festival exhibit design.

### 3D Application Interface Designer

#### RocScience

2016 | Toronto, ON, Canada

User interface, asset & print design for 3D slope & tunnel modelling software.

### User Experience Engineering Consultant

#### Usability Matters

2015-2016 | Toronto, ON, Canada

Interactive WCAG-compliant web applications. Server administration and site monitoring.

## Awards

### Leadership Grant

Microchip Inc.  
2024

### NSERC USRA Student Research Award

2019

### NSERC Experience Award

2017

### Dean's Scholar of Excellence Award

University of Toronto  
2016

### NSERC Experience Award

2016

### President's Scholars of Excellence Entrance Award

University of Toronto  
2015

## Academia

### EDUCATION

#### Bachelors of Electrical & Computer Engineering (EngSci)

##### University of Toronto

2015-2019

Robotics Minor. Engineering Communication Certificate. GPA 3.70

### PAPERS

#### Moveillance: Visualizing Electric Machines

##### IEEE Symposium on VR & AR (SVR)

2020

EM field visualization for motor evaluation in Augmented Reality.

Steve Mann, Danson Garcia, Phillip Do, **Derek Lam** & Pete Scourboutakos

#### The Human Eye as a Camera

##### IEEE HealthCom

2019

Visual Evoked Potentials for forming images from human vision. Stimulus & measurement apparatus design. Data and image processing.

Steve Mann, **Derek Lam**, Kyle Mathewson, Jeremy Stairs, Cayden Pierce, Jesse Hernandez, Georges Kanaan, Luke Piette, Humza Khokhar, & Christina Mann

#### Encephalogram: Brain/Mind Games

##### IEEE Games, Entertainment & Media

2019

Competitive brainpower games, using attention metrics on EEG streams.

Steve Mann, Diego Defaz, Tamer Abdulazim, **Derek Lam**, Mike Alford, Jeremy Stairs, Cayden Pierce, & Christina Mann

## Volunteer Work

### Epilepsy Electrode Therapy Visualization

#### Intelligent Sensory Microsystems Lab

2017 | Toronto, ON, Canada

Visualization and analytical tools for CT scans of electrode grids. 3D walk algorithms for mesh detection. 3D thresholding algorithms.

### Lead Web Programming Instructor

#### Project Include

2016 | Toronto, ON, Canada

Web programming skillset building and technical literacy for middle school students. Project-based curriculum design and teaching.

## Projects

### rahse + stacker: Symbolic analysis for reactive Haskell apps

2019-present

Symbolic execution engines for stateful and/or reactive applications. Race condition analysis from data dependency graph analysis.

### Lead Humanoid Robot Designer

#### University of Toronto Robotics Association

2017-present | Toronto, ON, Canada

Embedded, control, software and mechanical design for 16-DOF bipedal humanoid soccer robot. Custom servo engineering + fabrication.