

## SKILLS

**LANGUAGES** | Python, Golang, Java, C/C++, Bash, R, JavaScript

**ML & CLOUD** | Tensorflow + TPU, PyTorch, scikit-learn, MS Azure, Google Cloud Computing, Conda, HPC cluster OS (Slurm)

**FULL STACK** | React.js, Django, HTML/Bootstrap, SQL, iOS, Git, MongoDB, Android, Unix/Linux

**CREATIVE** | CAD, Adobe Suite, Microsoft Office

## AWARDS

**1st Place + Axelrad Award** for Best Computer Science Research | 2018

**Princess Margaret Research Studentship** for top undergraduate research | 2018

**Silver Medal + Top 20 @ Canada** Wide Science Fair | 2017

**1st Place Honours @ Sanofi** Biogenius Challenge | 2017

**Top 15% National Mathematics** Contest @UWaterloo | 2017

## EDUCATION

### UNIVERSITY OF TORONTO

COMPUTER SCIENCE 2021  
&& STATISTICS ComSci GPA:  
&& MATH (MINOR) 3.77/4.0

**CS Core** | Machine Learning, Probability, Linear Algebra, Algs + Data Structures, Software Design, OOP, Computational Theory

**Life Science (2017-19)** | Evolution, Biology, Chem, Genetics, Neurosci

## EXPERIENCE

**Vector Institute | Deep Learning Research Intern** Winter 2020 - Present

ADVISORS: DAVID DUVENAUD (VECTOR INSTITUTE) + SHANE GU (GOOGLE BRAIN)

- Using **neural stochastic** differential equations for infinite-depth **Bayesian neural nets** & continuous time data. Application to model-based **reinforcement learning** & **generative models**
- Developing custom research **frameworks** and **environments** in **Tensorflow, Pytorch, & JAX**

**Google | Software Engineering Intern** Summer 2019

GOOGLE CLOUD BUILD INFRASTRUCTURE

- Designed, tested, and released **4 new binaries + Skylark container rules** on **Google Cloud Registry**, providing **backwards compatibility** to the **rules-docker open source** repository
- Migrated **Python backend** to **Go** & incorporated **Bazel** to build **hermetic Docker containers**
- Implemented specifications for **legacy** & new **V2.2/multi-OS** Docker Image Schemas
- 10% Project (Google Serve)**: Kitchener-Waterloo Art Gallery touchscreen display software

**aUToronto | Software Engineer (Perception)** Summer 2019-Present

U OF T AUTONOMOUS VEHICLE DESIGN TEAM

- Designing **level-4 autonomous computer vision** systems for **pedestrian/vehicle detection**
- Adapted **state-of-the-art research** techniques including **SqueezeDet & PointPillars**
- Worked **collaboratively** to deploy software for **SAE Autodrive Challenge (1st place in '18 & '19)**

**HiRide Inc. | Full Stack Developer** Winter 2019

NLP + CHATBOT

- Student carpooling app** built with **React.js** that replaces ride share events on social media
- Used **Dialogflow** to build interactive **chat bot** to **save 90%** of manual rider-driver coordination

## RESEARCH

**FOR.ai | Machine Learning Researcher** Summer 2019 - Present

ADVISOR: AIDAN GOMEZ

- Improving **neural network training** and **data efficiency** with novel **progressive growth** networks built in **Keras & Tensorflow 2.0** with **TPU** deep learning acceleration + **Tensorboard** integration
- Exploring **Targeted Dropout** in obtaining sparse and performant neural networks
- Build & maintain custom **deep learning codebase** for modular + extensible experimentation

**Princess Margaret ML Cancer Research | Research Intern** Summer 2018

ADVISOR: MICHAEL HOFFMAN

- Developed **epigenetic annotation pipelines** & adapted **unsupervised ML (Segway + sci-kit Learn)** techniques to **quantify and predict** key cancer-linked proteins from **20+** high-res next generation sequencing datasets, validating **2 new ChIP-seq** technologies
- Visualized generated **insights on data resolution utility** with **R, Seaborn (Python), & Bash**

## PROJECTS

**DOC: Digital On-Call-Healthcare Consultant** BCGxGoogle GE Week 2019

- Built a **javascript** powered front-end interfaced with **mixed-Gaussian** statistical model in **Python** that mapped health data to symptom diagnosis via real time **NLP** of speech transcript
- Won **1st Place Award** out of select top 40 teams across all Canadian universities

**Innovape: The Health Aware Vape** Top Prize - Hack the North 2019

- Reverse-engineered a **Juul**, remodelled architecture w/ **Arduino**, and added a personalized nicotine reduction algorithm via **Gaussian modelling** to dynamically reduce nicotine output

**SocialBIT** HackMIT 2018

- Real-time '**social Fitbit**' that tracks social interactions at the micro-scale and generates visualizations for social frequency with location tracking using **D3.js & Firebase**
- Implemented **facial recognition algorithm** with **OpenCV/dlib + YOLOv3** that detects select acquaintances in live video from a glasses-mounted **Raspberry Pi** camera