

# Lawrence Pang

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## SKILLS

Machine Learning  
Image Processing  
Data Science  
Algorithms and Data Structures  
Object-Oriented Programming  
Functional Programming  
Web Development

## TECHNOLOGIES

### LANGUAGES

Python • MATLAB • Java • C++ •  
JavaScript • HTML5 • CSS3 • R •  
Jupyter • Arduino • Scala • Solidity •  
SQL • Processing • Bash • VisualBasic  
• L<sup>A</sup>T<sub>E</sub>X

### FRAMEWORKS AND TOOLS

Git • TensorFlow • Pandas • Keras  
• Flask • Django • Node • Express •  
MongoDB • Bootstrap • Apache Spark  
• Synaptic • JQuery

## COURSEWORK

Algorithms • Princeton  
Big Data With Scala and Spark  
Machine Learning • Stanford  
Deep Learning • Google  
Data Analysis With R • Facebook  
Intermediate C++ • Microsoft

## AWARDS

### TEAM CANADA

• International Linguistics Olympiad

### NATIONAL CHAMPION

• Canadian Senior Mathematics  
Contest

### SILVER MEDAL

• Don Mills Programming Gala

## EDUCATION

### UNIVERSITY OF WATERLOO

#### COMPUTER ENGINEERING

Expected Jul 2022 | Waterloo, ON

### MARC GARNEAU C.I.

#### TOPS PROGRAM

Jul 2017 | Toronto, ON

GPA: 97.0 / 100

SAT: 2400/2400

## EXPERIENCE

### WATONOMOUS | CORE PERCEPTION TEAM

Sep 2017 – Present | Waterloo, ON

- Part of autonomous car team that will compete in GM's AutoDrive Challenge
- Using **convolutional neural network** in **Python** and **C++** to segment and classify traffic signs

### SUNNYBROOK RESEARCH INSTITUTE | SOFTWARE INTERN

Jul 2016 – Sep 2016 | Toronto, ON

- Created **MATLAB** software to automatically detect anatomical structures in MRI images to treat uterine fibroids
- Used **image morphology** techniques and **unsupervised learning algorithms**
- Increased efficiency of segmentation process by 80-90%

### INTERNATIONAL LANGUAGES PROGRAM | OFFICE ASSISTANT

Sep 2013 – Jun 2017 | Markham, ON

- Automated creation of educational materials in **VisualBasic**, reducing time spent by 90%
- Acted as liaison between office administration, teachers, and students

## PROJECTS

### SOCCER SENTIMETER | PYTHON/DJANGO

- Created dynamic website tracking Twitter sentiment of soccer teams
- Used **natural language processing** and various APIs (Google Maps, Twitter, Highcharts, MediaWiki, TextBlob)
- Created clean, responsive design and generated an **SQLite3** database

### WORM COLONY SIMULATION | JAVA

- Simulated neural evolution with a novel approach combining **synaptic time-dependent plasticity** and an **evolutionary algorithm**
- Demonstrated ability to learn and associate various environmental inputs

### CHROME TAB PREDICTOR | JAVASCRIPT/SYNAPTIC

- Chrome extension using a **neural network** to predict and open tabs
- Worked in a team of two to parse and organize data and implement a neural network in **Synaptic**

### PERSONAL WEBSITE | NODE/EXPRESS

- Created personal website without any use of templates, in **Node** and **Express**
- Dynamic and responsively designed, stored data using **MongoDB**

### GRAPHING CALCULATOR | JAVA

- Created a graphing calculator with calculus and statistical tools
- Implemented **reverse polish notation** and **Shunting-Yard algorithm**

## HACKATHONS

### SOFA SEARCH | HACK THE NORTH 2017

- Recommendation system for sofas and other furniture
- Used **reinforcement learning** on a **convolutional neural network** in **Keras** on a **Tensorflow** backend to identify features from images of furniture
- Connected front and back end using **Flask** framework