# Blaine Ayotte

Machine learning researcher with experience using behavioral biometrics for mobile authentication, utilizing touchscreen, location and other sensors. My current research focuses on improving the accuracy and efficiency of keystroke dynamic based authentication systems, which identify users based on their typing patterns.

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## EXPERIENCE

### **Clarkson University,** Potsdam, NY — *Graduate Research Assistant*

Fall 2017 - Current

Participated in the NSF innovation-corps program designed to support the commercialization of technologies revolving around fundamental discoveries in science and engineering. I took entrepreneurship-based classes as well as conducted market research to determine how our technology could fit into the cyber security market.

Lead a team of students to place as 2nd runner up in the Global division in the Clarkson University 2019 Presidents Challenge. Submitted a keystroke dynamics based project: *Using the Internet of Things (IoT) to make the global community a better place*.

Conduct research, publish papers, and teach undergraduate workshops on machine learning and signal processing.

### **Corning Inc.,** Corning, NY — *Electrical Engineering Graduate Intern*

May 2018 - August 2018

Built a proof-of-concept deflectometer to accurately measure the shape of glass using python and OpenCV, potentially saving the company hundreds of thousands of dollars.

## SIDE PROJECTS

**Arduino microprocessors**

Built a remote controlled/self-driving car with RF transmitter and receiver and an automatic plant watering system that measures moisture content in soil, and if it is below a specified threshold the Arduino will turn on a water pump.

**AiRobot**

Designed and built prototype robot (AiRobot) that drives around a room with air quality, humidity, and temperature sensors, creating maps of the environment. An air humidifier, heater, or purifier can be placed on the robot and it will drive to the source of pollution, or low humidity and turn on the appliance. Project available online **(here)**:

## EDUCATION & SELECTED PAPERS

### **Clarkson University,** Potsdam, NY — *PhD & M.S Electrical and Computer Engineering*

August 2017 - June 2021 Expected

**B. Ayotte**, M. K. Banavar, D. Hou, and S. Schuckers, 2020. **Fast Free-text Authentication via Instance-based Keystroke Dynamics**. IEEE Transactions on Biometrics, Behavior, and Identity Science.

**B. Ayotte**, J. Huang, M. K. Banavar, D. Hou, S. Schuckers, **Fast Continuous User Authentication using Distance Metric Fusion of Free-text Keystroke Data**, *Conference on Computer Vision and Pattern Recognition (CVPR) Biometrics Workshop*, 2019

### **St. Lawrence University,** Canton, NY — *B.S. Physics and Mathematics*

AUGUST 2013 - MAY 2017

2 time All-American Cross Country Skier and 4 year NCAA D-I Athlete

NCAA D-III Cross Country Runner

Member, Phi-Beta-Kappa National Honor Society

## TOOLS AND TECHNOLOGIES

Python (packages include: OpenCV, keras, tensorflow, numpy, scipy, pandas, matplotlib, sklearn, etc.), Matlab, Arduino, and familiar with Android Studio, C++, Javascript, SQL, and HTML.