Blaine Ayotte

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EDUCATION

UNDERGRADUATE:

BS, Physics and Mathematics, May 2017, **St. Lawrence University**, Canton, NY
Physics Major GPA: 3.889/4.000; Math Major GPA: 3.875/4.000; Overall GPA: 3.821/4.000

GRADUATE:

MS, Electrical and Computer Engineering, August 2019, **Clarkson University**, Potsdam, NY
PhD, Electrical and Computer Engineering, **Clarkson University**, Potsdam, NY (Expected Date of Graduation: May 2021)

RESEARCH EXPERIENCE

My current research is on keystroke dynamics which studies how people input text via their keyboards. More specifically, I have been working to reduce the number of keystrokes before an accurate authentication can be made. An example of how keystroke dynamics can be used to protect passwords is available on my website blaineayotte.github.io/demo. Previous research includes behavioral biometrics for mobile authentication using touch, location, and other features.

WORK EXPERIENCE

Corning Inc., *Intern*, Corning, NY — May 2018-August 2018

- Built proof-of-concept deflectometer using python and Open CV

Clarkson University, *Graduate Research Assistant*, Potsdam, NY — Fall 2017-Current

- Help conduct research, publish papers, and occasionally teach undergraduate workshops

CONFERENCES and PAPERS

- **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
- **B. Ayotte**, M. K. Banavar, D. Hou, S. Schuckers, **Fast and Accurate Continuous User Authentication by Fusion of Instance-based, Free-text Keystroke Dynamics**, *International Conference of the Biometrics Special Interest Group (BIOSIG)*, 2019
- **B. Ayotte**, J. Au-Yeung, M. K. Banavar, D. Barry, G. Muniraju, S. Rao, A. Spanias, C. Tepedelenlioglu, **Signal processing and machine learning concepts using the reflections echolocation app**, *IEEE Frontiers in Education Conference (FIE)*. IEEE, 2019.
- Clarkson University Research and Project Showcase (RAPS)
  - Best poster award in category Biometrics (Graduate), Spring 2018
  - Audience favorite poster award in category Sensors and Signal Processing (Graduate), Spring 2019
  - Best presentation in category Signals & Signal Processing (Graduate), Summer 2019
  - Honorable mention for poster in category Computational Methods (Graduate), Summer 2019

OHER PROJECTS

I am self-taught using Arduino microprocessors. I have built a remote controlled/self-driving car with RF transmitter and receiver. I also have built 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.

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 the source of pollution, or low humidity and turn on the appliance. By bringing the solution to the source AiRobot intelligently solves the problem. Project available online at: https://www.hackster.io/104667/airobot-320828

I lead a team of students in the Clarkson University 2019 Presidents Challenge to submit a keystroke dynamics based project to serve the global community. Challenge description: Using the Internet of Things (IoT) to make the global community a better place. We achieved 2nd runner up in the Global division.

Volunteered at Terrra science and engineering fair in Potsdam NY. Helped to judge students work and provide positive feedback for students in grades 5-12 projects.

SKILLS

Proficient in MS Office, LaTex (PDF Writer), Python (packages include: OpenCV, keras, tensorflow, numpy, scipy, pandas, sklearn, etc.), Matlab, Arduino, and familiar with Android Studio, C++, javascript, sql, and html.