Faizan Haque

Research Engineer, human-computer interaction
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Areas Of Interest

Human-computer interaction – Wearable devices – Natural user interfaces – Machine learning – Biomedical signal processing

Publications

Faizan Haque, Mathieu Nancel, and Daniel Vogel. 2015. Myopoint: Pointing and clicking using forearm mounted electromyography and inertial motion sensors. In Proceedings of the 33rd Annual ACM Conference on Human Factors in Computing Systems (CHI '15). ACM, 3653–3656.

Experience

Sept 2015 – Sept 2016 **Thalmic Labs** [YC W13]
Research Engineer

- Collaborated with PM, design, engineering, and leadership teams to drive UX focused research
- Led user testing efforts company wide, introducing protocols and methodologies
- Prototyped algorithms for interaction experiments (sensors, input devices)

May – Aug 2014 **Thalmic Labs** [YC W13]
Software Engineer (co-op)

- Developed interaction technique fusing IMU and EMG sensors to allow for accurate control of distant displays
- Shipped algorithm as *presentation mode* feature for the Myo armband

Sept 2013 – Apr 2014 **University of Waterloo** | Human-Computer Interface Lab
Undergraduate Researcher (co-op)

- Designed interaction techniques for freehand pointing and target selection on large scale displays using the EMG armbands
- Published technique in peer reviewed publication

Jan – Apr 2013 **University of Waterloo** | Collaborative Systems Lab
Undergraduate Researcher (co-op)

- Designed large format touch + pen input tabletop as testing platform for researchers
- Explored FTIR/DI methods for efficient multi-touch detection using consumer hardware

May – Aug 2012 **University of Toronto** | Dynamic Graphics Project Lab
Undergraduate Researcher (co-op)

- Designed a multi-device interaction framework that enables applications to span multiple devices in real time, including the use of inter-device gestures
- Prototyped the API in Javascript using Meteor.js

Jan – Apr 2012 **École Nationale de l'Aviation Civile (France)** | Interactive Computing Lab
Undergraduate Researcher (co-op)

- Selected to participate in LEIF undergraduate research exchange
- Integrated multi-touch detection into a tangible–UI air traffic control terminal
- Ported image processing subsystem to OpenCV, substantially reducing CPU load

Projects

Sept 2014 – Apr 2015 **Finger Flexion Classification using Consumer Electromyography** (Group, capstone undergraduate project)

- Explored machine learning techniques (shallow/deep neural networks) to allow consumer-level EMG sensors to detect and classify simultaneous finger flexion and extension

Jan – Apr 2014 **Proxima** (Group, product design course)

- Developed a wearable device to facilitate rapid data transfer between devices using a gestural interface

May – Aug 2013 **Microbat** (Group, product design course)

- Designed a wearable, sonar-based obstacle detection system to aid in navigation tasks among the visually impaired

Education

Apr 2016 University of Waterloo
BASc. in Honours Systems Design Engineering, Co–op program

Awards & Honours

Feb 2014 Google Lime Scholarship – $5000
Finalist

Jan 2013 University of Waterloo Undergraduate Research Internship award – $1000
Based on research potential and academic merit

Jan 2012 LEIF Transatlantic Exchange Partnership Project award – $7400
For research potential in support of LEIF research exchange

Sept 2009 University of Waterloo Merit Scholarship – $1000
Based on academic merit