

**Student Research Opportunities -- Centre for Mobile Innovation (CMI) Research Projects**

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| <b>Part time position – 4 positions available</b>   |
| <b>Job Title:</b> Mobile app developer for lifecycle management of mobile devices   |
| <b>Industry Partner:</b> SOTI Inc.  |
| <b>Key Role:</b> co-mentorship, equipment provider/access   |
| <b>Principle Investigator:</b> Dr. Abdul Mustafa  |
| <b>Area of expertise:</b> software development  |
| <b>HQP: key skills sets:</b> IOS and Android Development, mobile sensors and machine learning   |
| <b>Project Summary:</b>   |
| <p>Due to the extensive growth and diffusion of mobile devices (smartphones, tablets, smartwatches) and their increasingly powerful capabilities, many people use mobile devices both for personal and work-related activities. Mobile technologies also enable enterprises to become more efficient, more creative and, thus, more valuable to clients. These technologies are being used to support more efficient business processes through real-time communications, quick data access, notifications and business updates. Businesses are turning to mobile technologies for improved and responsive service delivery, operational efficiencies and active client engagement.</p> <p>The project will look into two aspects:</p> <ul style="list-style-type: none"> <li>• <b>Physical Security:</b> this will involve collecting data form various sensors of the mobile device and determine the health of the mobile phone/tablet. Accelerometers, gyroscope, compass etc. can be used to detect accidental falls or bumps. the app should be also able to monitor processor, RAM and storage space to find out about if the phones been overworking or not.</li> <li>• <b>Network security:</b> further to physical security, we want to use the computing power of mobile phones and detect anomaly and intrusion. Specifically for cellular network where the phone/tablet is not protected by layers of firewalls and IDPS systems. This will require “Fog” computing.</li> </ul> <p><b>Remuneration:</b></p> <ul style="list-style-type: none"> <li>• \$16- \$18 / hour depending on experience and qualifications</li> </ul> <p><b>Technologies:</b></p> <ul style="list-style-type: none"> <li>• IOS</li> <li>• Android</li> <li>• Mobile technologies – cellular services</li> <li>• Sensors and mobile hardware</li> </ul> |
| <p><b>Time and Schedule:</b></p> <ul style="list-style-type: none"> <li>• 14h / Week for 13 weeks starting at January 11 and ends April 23 (excluding reading week)</li> </ul>  |

**Responsibilities:**

- Research emerging technologies, frameworks and techniques relevant to the research project
- Research and review literature as required by the research project
- Research 3rd party components that can be reused in the project
- Software development, software design, modeling and requirements analysis
- Test, debug and troubleshoot software applications developed for the research project
- Estimate and plan tasks that meet agreed upon deadlines
- Participate in team-meetings, prepare, participate in presentation meetings and communicate with industry partners under the supervision of the PI
- Work online in a collaborative approach.
- Bi-weekly meeting with industry partner through skype or other online platform.

**Job Requirements (Required):**

- Demonstrable mobile app development on Android and iOS platform
- Demonstrable knowledge of professional development practices, best-practices, using debugging techniques, unit-testing and software version control.
- Experience with micro-controllers like Raspberry pi, Arduino
- Experience with cellular technologies like 4G, 5G
- Can-do attitude, resourceful, demonstrates initiative, creativity and passion for purposeful, result-oriented research
- Minimum 2 year academic experience in the Mobile Computing Degree program or 2 years and relevant COOP experience in a related diploma program.

**Job Requirements (Beneficial / Good to have assets):**

- Demonstrable experience developing universal applications capable on working on multiple device types (e.g. mobile, tablets and large-screen devices) using SWIFT, XCode
- Experience with MATLAB
- Multi-threaded programming experience
- Experience in communication using team tools such as Slack
- Experience in project planning and management using agile management tools such as Asana
- Interest and experience in UI design, graphics and digital media design