Computer Science MQP Interests
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General Areas of Interest

- Intelligent mobile apps, detect user behavior
  - Phone sensor data + Machine learning
  - Application areas:
    - Health, wellness, drunk detection, wound analysis
    - Security
- Important: Prefer students who know Machine/deep learning, mobile/Android programming
Problem: Interventions (contact tracing, social distancing) paper-based

MQP idea: Passively do

- **Contract tracing:** Estimate number of "contacts" (close proximity) each smartphone user has, and who they are (uses Bluetooth, WiFi co-location)
- **Isolation monitoring:** Passively monitor how well each smartphone user isolates themselves (e.g. using distance traveled, busy places visited, etc)
- **Case studies:**
  - Quantify/categorize smartphone users’ risk level (low, medium, high)
  - Pretend a smartphone user gets infected, SMS to all their contacts
MQP Idea: Distinguish smartphone users based on their walk/gait

- Run study or run study to gather data (accelerometer, gyroscope)
- Use machine/deep learning/Neural Networks on accelerometer, gyroscope data
- Create app using deep learning model, welcomes owner “Hello Bob” based on their walk
- Deploy, evaluate at WPI Live!!