CS MQP Interests 2010-2011

by Emmanuel Agu
General interests

- Graphics rendering of any kind
  - Photorealistic: Looks real, takes time to render
  - Real-time: such as graphics in games
- Mobile computing applications using WPI campus as testbed
- General Purpose Computing using Graphics Processing Units (GPUs)
  - Using graphics cards to do non-graphics compute-intensive applications
  - Program using specialized GPU language called CUDA or OpenCL
- Exploiting change blindness in games
- Mobile application 1: Distress student help
- Mobile application 2: Mobile blogging/campus monitoring application
MQP 1: Change Blindness

- Fact: Humans focus so much on tasks, they are blind to change/degradation in other parts of screen.
- Question: which types of degradation can we get away with/reduce quality, improve rendering speed?
- Modify game (C4), user experiments:
  - Study architecture of available game engine (e.g. C4)
  - Change lighting
  - Add fog
  - Add smoke
  - Vary resolution
  - Substitute textures with images
  - Many variables!! Which one affect players most?
MQP 2: iCanHelp

- Distress student help
- WPI Student development and counseling center
- Develop mobile app to help distressed friend:
  - Facts about mental health topics
  - Interactive conversation practicing mode
  - Location-aware: Use GPS to find nearest resources
- SDCC will provide information, resources
MQP 3: Mobile blogging & campus monitoring

- Build campus wide mobile blogging system
  - Upload pictures
  - Track friends locations
  - Tag locations with comments
  - Follow campus events, find resources

- Participatory sensing
  - Also use system for security monitoring
  - E.g. man carrying a suspicious big bag
  - One person uploads picture
  - Many comments later: turns out it’s a student’s dad
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