Large-Scale, Real-Time 3D Image Reconstruction Using Multi-View Stereo Algorithms

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Progress & Challenges

- Successfully got my code running on the NVIDIA graphics card (GeForce 9800 GX2).
  - Initially, I was only able to run my program using the OpenGL implementation.
  - Discovered issues with my CUDA library installation and linking. Fixing the issues allowed me to run my code using the CUDA libraries.
  - Significant improvements in execution time of SIFT on current computer set-up:
    
    \[
    \begin{array}{c|c|c}
    \text{CPU} & \sim 8.8s & \text{OpenGL} & \sim 5.4s & \text{CUDA} & \sim 3.5s \\
    \end{array}
    \]
Have been working on replacing ANN library with KNN CUDA library.

- Challenge has been figuring out how to rewrite the code to utilize the same inputs as KeyMatchFull and ANN and produce the same outputs.
Goals for the next three weeks

- Replace ANN/KeyMatchFull with KNN CUDA. This will take up a large chunk of time due to how the Bundler software is designed.
- Parallelize SiftGPU, KNN CUDA, and/or PMVS2, depending on amount of time I have.
Culture

Tamsui Old Street

A-Gei (front bowl), specialty dish originating from Tamsui

Bali Wharf/Old Street
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