



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

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# Progress

- Wrote code to swap out SIFT and integrate SiftGPU into the software system to utilize the GPU for acceleration of the SIFT algorithm.
  - ◆ This resulted in a denser and more accurate point cloud, but Bundler took 4 times longer to run (~40 seconds using SiftGPU vs ~10 seconds SIFT). Why?
    - ➔ SiftGPU was most likely limited by the old integrated graphics card on my work computer.
    - ➔ Installed better graphics card to test software, but it was defective and caused problems in the computer. Had to remove the graphics card, so was unable to confirm GPU acceleration. Will need to remote access better computer to test.

# Progress

- Began working on fixing the next bottleneck in the Bundler software, which is the library used to match keypoints.
  - ◆ Will test to see whether SiftMatchGPU is a better alternative to KeyMatchFull.

# Upcoming Goals

- Integrate SiftMatchGPU to see if it is a faster alternative to KeyMatchFull.
- Considering utilizing CUDA over GLSL, though that would mean limiting GPU hardware to NVIDIA. Will need further input on this matter.
- Test program on better computer to confirm GPU acceleration.

# Culture

Beipu Old Street



Man preparing léi chá, a traditional hakka beverage

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