Build Panorama on Android Phones
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Motivation
- Automate wide-angle panoramas from a sequence of photos taken by Android phones.
- Leverage the mobile computing and network bandwidth to provide better user experience.

System Overview
- Hardware: Motorola Droid phone (5 mega pixel camera, CPU 550MHz, Magnetic field sensor), Dell Precision PC (CPU 2.33GHz).
- Software: Android SDK r05, Android NDK r03, OpenCV 1.1 [1]
- Network: WiFi, 3G

Pipeline
- Use magnetic sensors on the phone to get the orientation of the camera.
- Down-sample image to 1/16 of the original size.
- Two-tier structure: mobile computing and cloud computing
  1. For images less than 3: all computations are on mobile devices.
  2. For images more than 3: send down-sampled images to the server and computations are in the cloud.
- Main workflow:

Experimental Results

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Related Work
- Autostitch (http://www.cloudburstresearch.com) for iPhone.
- Brown and Lowe, ICCV, 2007
- Panoman for Nokia phones.
- Photostitch and Photoshop for PC.