Kevin Matzen

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Education

Cornell University 2010 - Present
Ph.D. in Computer Science - Advisor: Noah Snavely
Research Interests: Computer Vision, Computer Graphics, Robotics

- To use 3D reconstructions built from Internet photo collections in order to automatically understand urban environments across space and time.

University of Michigan 2006 - 2010
BSE Computer Science Engineering; BSE Computer Engineering Summa Cum Laude

Publications

Kevin Matzen, Noah Snavely. **"NYC3DCars: A Dataset of 3D Vehicles with Geographic Context."** In Proceedings of International Conference on Computer Vision (ICCV), 2013.
NYC3DCars is a novel dataset that combines Internet photographs, 3D vehicle pose annotations, and geographic scene information. See nyc3d.cs.cornell.edu for more details.

Work Experience

Microsoft Software Development Engineer Intern
Redmond, WA Summer 2009
Designed, implemented, and constructed testing strategies for software infrastructure used in the first commercial release of Windows Azure as part of the Azure Developer Experience team.

- Performed end-to-end development of Windows Communication Foundation (WCF) bindings for the support of Azure Queue as a message relay.
- Reimplemented the C# Azure Storage Client's blob support to minimize memory footprint.
- Designed and implemented a framework to detect inconsistent state for distributed services and to perform automated conflict resolution.

National Instruments Software Development Intern
Austin, TX Summer 2008
Designed and implemented features for NI LabVIEW and NI VeriStand including:

- A system for generating FPGA-based I/O personalities given simulation definitions.
- A system for building distributed simulations using GE Fanuc Reflective Memory.

Aero-Metric, Inc. Programming Intern
Sheboygan, WI Summer 2007
Aero-Metric is a geospatial services firm specializing in aerial photography, LiDAR, etc.
Developed a flight tracking and project management system with Google Earth integration.

Projects

Tightly Integrated Perception and Planning in Intelligent Robotics 2010-Present
Working to improve vehicle detection, pose estimation, and tracking by tightly integrating state-of-the-art vision and tracking techniques in a verifiable framework.
Work also includes sensor and embedded system development on Cornell's autonomous car, Skynet.

Urban Scene Understanding Across Space and Time 2010-Present
Working to leverage photo collections for urban scenes with spatially and temporally dense observations in order to better understand how the environment has changed over time.

Tools and Skills

C++, C, Python, Javascript, Hadoop, OpenGL/WebGL, CUDA, MATLAB, PostgreSQL, Nginx, Mechanical Turk, Flask, Tornado, Celery, Ember.js, D3.js
Example code: github.com/kmatzen/{HadoopPythonMR,pydro,nyc3dcars-labeler,blink}.

Activities

Cornell Teaching Assistant (TA Excellence Award) Fall 2010
Teaching assistant for undergraduate computer vision course.

University of Michigan Teaching Assistant 2009
Teaching assistant for undergraduate operating systems course.