

# Shawn Recker

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## Experience

**Research Scientist – SURVICE Engineering Company**                      **June 2013 - Present**

Working on problems related to photogrammetry. I am the lead researcher and developer for the HawkEye Structure-from-Motion project, which incorporates many state-of-the-art reconstruction algorithms.

**Graduate Student Researcher – University of California Davis**   **October 2011 – November 2015**

Developing novel structure-from-motion algorithms for my dissertation. I presented published work at several conferences and served as the technical advisor to several undergraduate student research projects.

**Teaching Assistant – University of California Davis**                      **September 2011 – December 2011**

Lead the discussion section for a course of over 60 students. I assisted in exam creation, graded homework, and graded exams. I hosted several office hours per week for student assistance.

**Research Assistant – University of Wisconsin Oshkosh**                      **June 2010 – July 2010**

Developed visualization of the Sutherland-Hogdman polygon-clipping algorithm for NSF funded REU program. I led a research study to determine the effectiveness of the algorithm visualization.

## Education

**Doctor of Philosophy in Computer Science**                                      **December 2015**

University of California Davis, Davis, CA 95616.

Specialization: Computer Vision

Principal Investigator: Dr. Kenneth I. Joy

**Bachelor of Science in Computer Science**                                      **May 2011**

Grove City College, Grove City, PA 16127.

Dean's List. Suma Cum Lade.

## Skills

My experience level ranks my technical abilities, which range from mildly familiar to extremely proficient.

**Legend:**                                      *Mildly familiar*, proficient, **Extremely Proficient**

**General Purpose Programming:**                      *C/C++, Java, C#, Objective-C, VB, CUDA*

**Web:**                                      *HTML5, JavaScript, PHP, ASP.NET*

**Mobile:**                                      *Windows Phone, Android*

**Development Environments:**                      **Visual Studio**, *XCode, Android Studio*

## Publications

### **Mobile Hybrid Photogrammetry/Structure-from-Motion for Practical Accurate 3D Reconstruction In-the-Field**

Shawn Recker, Christiaan Gribble, and Kenneth I. Joy.

*Applied Imagery Pattern Recognition Workshop (AIPR), 2015 IEEE*

### **A Comparative Study of Recent GPU-Accelerated Multi-View Sequential Reconstruction Triangulation Methods for Large Scale Scenes.**

Jason Mak, Mauricio Hess-Flores, Shawn Recker, John D. Owens, and Kenneth I. Joy.

*Asian Conference on Computer Vision Workshop: Big Data in 3D Computer Vision (ACCV), 2014 IEEE*

### **Depth Data Assisted Structure-from-Motion Parameter Optimization and Feature Track Correction**

Shawn Recker, Christiaan Gribble, Mikhail M. Shashkov, Mario Yezpez, Mauricio Hess-Flores, and Kenneth I. Joy

*Applied Imagery Pattern Recognition Workshop (AIPR), 2014 IEEE*

### **Uncertainty, Baseline, and Noise Analysis for L1 Error-Based Multi-View Triangulation**

Mauricio Hess-Flores, Shawn Recker, and Kenneth I. Joy

*International Conference on Pattern Recognition (ICPR), 2014 IEEE*

### **Hybrid Photogrammetry Structure-from-Motion Systems for Scene Measurement and Analysis**

Shawn Recker, Mikhail M. Shashkov, Mauricio Hess-Flores, Christiaan Gribble, Rob Baltrusch, Mark A. Butkiewicz, and Kenneth I. Joy

*Coordinate Metrology Systems Conference (CMSC), 2014*

### **Towards Sensor-Aided Multi-View Reconstruction for High Accuracy Applications**

Mikhail M. Shashkov, Mauricio Hess-Flores, Shawn Recker, and Kenneth I. Joy

*International Conference on Creative Content Technologies (CONTENT), 2014 IEEE*

### **GPU-Accelerated and Efficient Multi-view Triangulation for Scene Reconstruction**

Jason Mak, Mauricio Hess-Flores, Shawn Recker, John D. Owens, and Kenneth I. Joy

*Winter Conference on Applications of Computer Vision (WACV), 2014 IEEE*

### **Fury of the Swarm: Efficient and Very Accurate Triangulation for Multi-View Scene Reconstruction**

Shawn Recker, Mauricio Hess-Flores, and Kenneth I. Joy

*International Conference on Computer Vision Big Data for 3D Computer Vision Workshop (BD3DCV), 2013 IEEE*

### **Feature Track Summary Visualization for Sequential Multi-View Reconstruction**

Shawn Recker, Mauricio Hess-Flores, and Kenneth I. Joy

*Applied Imagery Pattern Recognition Workshop (AIPR), 2013 IEEE*

### **Visualization Methods for Computer Vision Analysis**

Mauricio Hess-Flores, Shawn Recker, and Kenneth I. Joy

*Pervasive Patterns and Applications (PATTERNS), 2013 IEEE*

**Statistical Angular Error-Based Triangulation for Efficient and Accurate Multi-View Scene Reconstruction**

Shawn Recker, Mauricio Hess-Flores, and Kenneth I. Joy

*Workshop on the Applications of Computer Vision (WACV), 2013 IEEE*

**Visualization of Scene Structure Uncertainty in Multi-View Reconstruction**

Shawn Recker, Mauricio Hess-Flores, Mark A. Duchaineau, and Kenneth I. Joy

*Applied Imagery Pattern Recognition Workshop (AIPR), 2012 IEEE*

**Visualization of Scene Structure Uncertainty in a Multi-View Reconstruction Pipeline**

Shawn Recker, Mauricio Hess-Flores, Mark A. Duchaineau, and Kenneth I. Joy

*17<sup>th</sup> International Vision, Modeling, and Visualization Workshop (VMV), 2012*

**Integer Ray Tracing**

Jared Hienly, Shawn Recker, Kevin Bensema, Jesse Porch, and Christiaan Gribble

*Journal of Graphics, GPU, and Game Tools, Vol. 14, No. 4*