

Dr. Eric Lee Turner

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OVERVIEW	Strong background in research, algorithm development, and software engineering. Core areas include Surface Reconstruction, Computer Graphics, Computational Geometry, SLAM, Signal Processing, and Computer Vision.		
EDUCATION	University of California - Berkeley		
	Ph.D. in Electrical Engineering and Computer Sciences		May 2015
	GPA: 4.00/4.00		
	University of California - Berkeley		
	M.S. in Electrical Engineering and Computer Sciences		May 2013
	GPA: 4.00/4.00		
	Carnegie Mellon University		
	B.S. in Electrical and Computer Engineering		May 2011
	QPA: 3.91/4.00 - Dean's List		
	Minors in Physics, Computer Science		
WORK EXPERIENCE	Indoor Reality, Inc.		06/2015 - Present
	Chief Technology Officer (CTO)		
	Principal Investigator (PI) on multiple federal grants. Technology lead in developing hardware, software, and algorithms used for automatic and rapid indoor building 3D modeling via backpack-mounted ambulatory scanning system. Developed software for data collection, algorithmic processing, and visualization. Supervisor for visualization and deployment development team.		
	Signetron, Inc.		07/2015 - Present
	Software Architect		
	Algorithm and software development for rapid indoor modeling, automatic building energy audits, and virtual tours from handheld scanning system. Principal engineer on software and hardware development, including localization and 3D modeling algorithms. Supervisor for team of software engineers.		
	EECS Department - UC Berkeley		01/2015 - 05/2015
	Graduate Student Instructor		
	Course EE 122: Introduction to Communication Networks Taught discussion sections, held office hours, graded homeworks/exams.		
	@Maps		08/2014 - 12/2014
	Principal Engineer		
	Developed hardware systems and surface reconstruction software for building modeling. Research and development of camera calibration procedures.		
	Speir Technologies		01/2013 - 01/2014
	Software Development Consultant		
	Developed prototype demo application and 3D modeling algorithms for remote viewing medical ultrasound scanning. Developed client-server model for remote medical scanning, sensor drivers interface, and 3D meshing techniques for live streaming of patient geometry.		

	MIT Lincoln Laboratory Summer Intern - Group 104: Intelligence and Decision Theory Developed algorithms for creation of synthetic test data for Synthetic Aperture Radar (SAR) Coherent Change Detection (CCD) track-finding.	05/2011 - 08/2011
	ECE Department - Carnegie Mellon Teaching Assistant Course 18-391: Noisy Signal Processing Wrote homework reference solutions, taught weekly office hours.	01/2011 - 05/2011
	Qualcomm Software Summer Intern - QCT Modem Integration Team Developed/automated methodology for optimizing and removing redundancies in client specs of processor builds.	05/2010 - 08/2010
	Flatirons Solutions Summer Intern Developed flight path modeling application for FAA. Wrote application to estimate cost/efficiency analysis for air traffic routes, interfaced with Google Earth.	05/2008 - 08/2008
RESEARCH EXPERIENCE	Video and Image Processing Lab - U.C. Berkeley Ph.D. Graduate Student 3D and 2D surface reconstruction algorithms for architectural modeling. Automatic reconstruction of indoor building environments from LiDAR and imagery data on an ambulatory backpack-mounted scanning system. System hardware design and assembly, including developing sensor drivers and processing architecture. Analysis of building geometry for room-layout and energy efficiency modeling.	08/2011 - May 2015
	Spiral Project - Carnegie Mellon Honors Research Undergraduate Analysis of efficiency and error for Synthetic Aperture Radar (SAR) algorithm for logic-in-memory implementation.	08/2010 - 05/2011
	Spiral Project - Carnegie Mellon Summer Research Undergraduate Implementation and analysis of search techniques for Spiral's code optimization engine. Developed genetic search algorithm for optimization of hardware-dependent software implementations of DCT, FFT, and Matrix Multiplication.	05/2009 - 08/2009
	Robotics Institute - Carnegie Mellon Research Assistant Design of user interface for LiDAR scans exported from variety of autonomous robotic systems.	09/2008 - 12/2008
COMPUTER SKILLS	Programming Languages: C/C++, Java, Python, BASH, SML, Basic, x86, JavaScript, Perl, NASM Markup Languages: HTML, LaTeX Software: Matlab, Mathematica, Maple, Unity, Autodesk Revit, Recap, Navisworks, AutoCAD, SolidWorks, Visual Studio, Git, SVN, Doxygen Frameworks: Eigen, Boost, OpenCV, PCL, OpenGL, Qt, Android, Google Tango, Spring, Processing, XStream	
AWARDS	Awarded Best Student Paper - GRAPP 2014	01/2014

9th International Joint Conference on Computer Vision, Imaging, and Computer Graphics Theory and Applications

Awarded NSDEF Fellowship

09/2013 - 05/2016

Funded by Office of Naval Research (ONR)

Presented at CMU Meeting of the Minds

05/2011

- Won First Place Lockheed Martin ECE Undergraduate Project

- Won Third Place CIT Honors Research Poster Competition

PUBLICATIONS Automatic Indoor 3D Surface Reconstruction with Segmented Building and Object Elements, Fifth Joint 3DV Conference 10/2015

3D Modeling of Interior Building Environments and Objects from Noisy Sensor Suites, Ph.D. Thesis, Department of Electrical Engineering and Computer Sciences, University of California Berkeley 05/2015

Multistory Floor Plan Generation and Room Labeling of Building Interiors from Laser Range Data, Communications in Computer and Information Science 2014

Fast, Automated, Scalable Generation of Textured 3D Models of Indoor Environments, Journal of Selected Topics in Signal Processing 08/2014

Image-Based Position of Mobile Devices in Indoor Environments, Multimodal Location Estimation of Video and Images 2014

Floor Plan Generation and Room Labeling of Indoor Environments from Laser Range Data, GRAPP 2014 01/2014

Reduced-Complexity Data Acquisition System for Image Based Localization in Indoor Environments, IPIN 2013 10/2013

Image Based Localization in Indoor Environments, International Conference on Computing for Geospatial Research and Applications 07/2013

Watertight Planar Surface Meshing of Indoor Point-Clouds with Voxel Carving, Third Joint 3DV Conference 06/2013

Watertight Floor Plans Generated From Laser Range Data, Master's Thesis 05/2013

Inserted Simulated Tracks into SAR CCD Imagery, Society for Modeling & Simulation International (SCS) 2013 Autumn Simulation Multi-Conference (Autumn-Sim'12) 10/2012

Watertight As-Built Architectural Floor Plans Generated from Laser Range Data, 3DIMPVT 10/2012

Sharp Geometry Reconstruction of Building Facades Using Range Data, ICIIP 2012 09/2012

Local Interpolation-based Polar Format SAR: Algorithm, Hardware Implementation and Design Automation, Japan Society for the Promotion of Science

06/2012

Polar Format Synthetic Aperture Radar in Energy Efficient Application-Specific Logic-in-Memory, ICASSP 2012 05/2012

Energy Efficient Application-Specific Logic-in-Memory for Interpolation in Synthetic Aperture Radar, High Performance Embedded Computing (HPEC) 09/2011