

Education

- UNIVERSITY OF CALIFORNIA AT SANTA CRUZ** (GPA 4.0) *PhD, Computer Science, Expected 2011*
- Awarded Regents Fellowship
 - Research Assistant with Professor James Davis for 3 years
- UNIVERSITY OF CALIFORNIA AT SAN DIEGO** (GPA 4.0) *graduate classes, 2002 - 2004*
- Computer Vision, Neuro-Computing, Machine Learning
- PRINCETON UNIVERSITY** (GPA 3.3) *Bachelor of Science in Engineering, 2001*
- Mechanical & Aerospace Engineering Department, Robotics & Intelligent Systems Program

Work Experience

- LOS ALAMOS NATIONAL LAB, CCS2, INTERN** *Summer 2008*
- Used hierarchical agglomerative clustering to accelerate object detection in images of the ocean floor
- NATIONAL SEMICONDUCTOR, DISPLAY TECHNOLOGY, INTERN** *Summer 2007*
- Created novel edge-preserving LCD backlight-dimming algorithm for power savings in mobile devices
- MICROSOFT RESEARCH, INTERACTIVE VISUAL MEDIA, INTERN** *Summer 2006*
- Experimented with all-in-focus panoramic image stitching, algorithm to choose optimal focus distances
- GENERAL ATOMICS, SYSTEMS ENGINEER** *Jan 2002- Aug 2004*
- Created and evaluated algorithms to obtain 3D models and precise object positions in near real time with stereoscopic Synthetic Aperture Radar and unmanned aircraft
 - Designed GPS receiver pairs that optimize relative positioning accuracy rather than individual accuracy
 - Group leader on field tests and collaborations with other groups within the company

Publications

- MATERIAL CLASSIFICATION WITH BRDF SLICES**
Wang, Gunawardane, Scher, and Davis. Conference on Computer Vision and Pattern Recognition (CVPR), 2009.
- Photographed an object lit from many directions. A BRDF-based similarity measure (SVM kernel) performs better pixelwise classification of material types than the standard euclidean distance.
- MAKING THE REAL WORLD VIRTUAL: TRACKING BOARD GAME PIECES**
Scher, Crabb, and Davis. International Conference on Pattern Recognition (ICPR), 2008.
- Determined the most likely legal sequence of moves in a board game (Go) from a video of the game, using a Hidden Markov Model. Board detected with RANSAC, pieces detected with SVM
- HIGH RESOLUTION STEREOSCOPIC SAR & RELATIVE GPS FOR TIME CRITICAL TARGETING**
Beals, Snider, Scher, Barre, and Funk. National Fire Control Symposium (NFCS), 2002.
- Empirical tests of Unmanned Air Vehicle (UAV) / Synthetic Aperture Radar (SAR) system described below
- PRECISION SAR TARGETING USING STEREOSCOPY AND RGPS ABOARD AN UAV**
Beals, Snider, Broesch, Barre, Scher, and Funk. 1st UAV, Systems, Tech, and Operations Conf. & Wkshp, 2002.
- An UAV and SAR were used to obtain 3D models and precise locations of a scene in near real time

Selected Research Projects

- MARKERLESS MOTION CAPTURE OF PEOPLE** *Current UCSC Graduate Research*
- Tracked a person by combining equi-energy MCMC with particle filtering, GPU-accelerated
 - A detailed human body model (25000 triangles) and depth-sensing cameras allow high accuracy
- LOW LIGHT PHOTOGRAPHY WITH AN INFRARED FLASH** *UCSC Graduate Course Project*
- Enhanced detail with a learned mapping from infrared wavelengths to visible color channels
- PHYSICAL 3D DISPLAY** *Princeton Senior Project*
- Designed and built a 2D array of sliding cylinders moved by electromagnets with analog lead-lag control

Skills

- PROGRAMMING LANGUAGES**
- Expertise with Matlab. Experience with C, C++, Java, GPGPU with OpenGL, others.
- FOREIGN LANGUAGES**
- Native English speaker, proficient in spoken and written Spanish and French
- HOBBIES**
- Go (Board Game), Rock Climbing, Ultimate Frisbee