

# Stephen David Miller

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Menlo Park, CA 94025, USA

EDUCATION      **Stanford University**  
*Start:* September 2011      *Graduated:* —  
*Degree:* PhD., Computer Science  
*Description:* Studying Machine Learning, Robotics, and Computer Vision.  
*Relevant Courses:* Machine Learning (CS 229), Computer Vision (CS 231A), Probabilistic Graphical Models (CS 228)

**University of California, Berkeley**  
*Start:* August 2007      *Graduated:* May 2011  
*Degree:* B.S., Electrical and Computer Engineering  
*GPA:* 3.934 (4.0 max)      *In-Major GPA:* 4.0 (4.0 max)  
*Description:* Computer Science specialization, with an honors area of study in Particle Physics  
*Relevant Courses:* Artificial Intelligence (CS188), Large-Scale Decision-Making (CS194), Efficient Algorithms and Intractable Problems (CS170), Optimization Models in Engineering (EE127A), Computer Vision (CS 280), Graphical Models (CS 281A)

**Escondido Charter High School**  
*Start:* August 2003      *Graduated:* June 2007  
*Degree:* Advanced Academic Diploma      *GPA:* 4.0 (4.0 max)  
*Status:* Valedictorian

## FELLOWSHIPS

- Hertz Graduate Fellowship (2011-2015)
- NSF Graduate Research Fellowship (2013-2015)
- SAP Stanford Graduate Fellowship (2011-2015)

## AWARDS

**Stanford University**

- Computer Science Department Student Service Award (October 2013)

**University of California, Berkeley**

- CRA Outstanding Undergraduate Research Award Finalist (November 2010)
- Mark D. Weiser Excellence in Computing Scholarship (April 2010)
- Jim and Donna Gray Endowment in Computer Science (November 2009)
- Member of EECS Honors Degree Program (August 2009 - May 2011)

## PUBLICATIONS

- [1] Elastic Fragments for Dense Scene Reconstruction  
Qian-Yi Zhou, Stephen Miller, Vladlen Koltun  
To appear at the *International Conference on Computer Vision (ICCV) 2013*  
**Oral Acceptance**
- [2] Unsupervised extrinsic calibration of depth sensors in dynamic scenes.  
Stephen Miller, Alex Teichman, Sebastian Thrun  
To appear at the *International Conference on Intelligent Robots and Systems (IROS) 2013*
- [3] Free your Camera: 3D Indoor Scene Understanding from Arbitrary Camera Motion.  
Axel Furlan, Stephen Miller, Domenico G. Sorrenti, Li Fei-Fei, Silvio Savarese.

- [4] Unsupervised intrinsic calibration of depth sensors via SLAM  
Alex Teichman, Stephen Miller, Sebastian Thrun  
*Proceedings of Robotics Science and Systems (RSS) 2013.*
- [5] Object Discovery in 3D Scenes via Shape Analysis.  
Andrej Karpathy, Stephen Miller, Li Fei-Fei  
*Proceedings of the International Conference on Robotics and Automation (ICRA), 2013.*
- [6] Word-level Acoustic Modeling with Convolutional Vector Regression.  
Andrew Maas, Stephen Miller, Tyler O’Neil, Andrew Ng, Patrick Nguyen.  
*ICML Workshop on Representation Learning, 2012.*
- [7] A Textured Object Recognition Pipeline for Color and Depth Image Data  
Jie Tang, Stephen Miller, Arjun Singh, Pieter Abbeel.  
*Proceedings of the International Conference on Robotics and Automation (ICRA), 2012.*  
**Best Robotics Vision Award Finalist**
- [8] A Geometric Approach to Robotic Laundry Folding.  
Stephen Miller, Jur van den Berg, Mario Fritz, Trevor Darrell, Ken Goldberg, Pieter Abbeel.  
*International Journal of Robotics Research (IJRR) Vol. 31 No. 2, February 2011.*
- [9] Perception for the Manipulation of Socks.  
Ping Chuan Wang, Mario Fritz, Stephen Miller, Trevor Darrell, Pieter Abbeel.  
*Proceedings of the International Conference on Robotic Systems (IROS), 2011.*
- [10] Parametrized Shape Models for Clothing.  
Stephen Miller, Mario Fritz, Trevor Darrell, Pieter Abbeel.  
*Proceedings of the International Conference on Robotics and Automation (ICRA), 2011.*
- [11] Bringing Clothing into Known Configurations with Minimal Perception.  
Marco Cusumano-Towner, Arjun Singh, Stephen Miller, James O’Brien, Pieter Abbeel.  
*International Conference on Robotics and Automation (ICRA), 2011.*
- [12] Gravity-Based Robotic Cloth Folding.  
Jur van den Berg, Stephen Miller, Ken Goldberg, Pieter Abbeel.  
*Proceedings of the 9th International Workshop on Algorithmic Foundations of Robotics (WAFR), 2010.*
- [13] Superhuman Performance of Surgical Tasks by Robots using Iterative Learning from Human-Guided Demonstrations.  
Jur van den Berg, Stephen Miller, Daniel Duckworth, Humphrey Hu, Andrew Wan, Xiao-Yu Fu, Ken Goldberg, Pieter Abbeel.  
*Proceedings of the International Conference on Robotics and Automation (ICRA), 2010.*  
**Best Medical Robotics Paper Award**

RESEARCH  
EXPERIENCE

University of California, Berkeley

Personal Robotics

May 2010 - August 2011

**Advisor:** Professor Abbeel

**Co-Advisors:** Professor Darrell and Professor Goldberg

- Considered many aspects of robotic cloth manipulation, from both a theoretic and implementation-specific standpoint. Theoretic contributions include a vision-based approach to detecting the pose of potentially-folded clothing articles, a framework for defining and executing folds in a deterministic fashion, and parametrized folding procedures for a number of specific clothing types.

- Primary administrator of the Berkeley PR2.

Surgical Robotics

**August 2009 - May 2010**

**Advisor:** Professor Abbeel

**Co-Advisor:** Professor Goldberg

- Explored the use of apprenticeship-learning techniques in a surgical robotic environment, namely in the realm of suture-tying. Most work dealt with robotic implementation and maintenance.

PROFESSIONAL  
EXPERIENCE

**Christianaudio**, Escondido, CA USA

*Web, Data, and Audio Technician*

**August 2006 - January 2011**

- Update and maintain samples, podcasts, and similar web services
- Proof audiobooks for accuracy and sound quality, both in-studio and post-production

TECHNICAL SKILLS

- Programming Languages: Java, C/C++/Objective C, Python, LISP/Scheme, MATLAB, Haskell, PHP/MySQL
- Operating Systems: Windows, UNIX, Linux, Mac OSX

REFERENCES

Professor Pieter Abbeel: [pabbeel@cs.berkeley.edu](mailto:pabbeel@cs.berkeley.edu)  
Professor Ken Goldberg: [goldberg@cs.berkeley.edu](mailto:goldberg@cs.berkeley.edu)  
Professor Trevor Darrell: [trevor@cs.berkeley.edu](mailto:trevor@cs.berkeley.edu)