Carol E. Reiley

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US Citizen

Curriculum vitae last updated: April 3rd, 2015

WORK EXPERIENCE

Stealth Startup Santa Clara, CA Feb 2015-current
Co-Founder

Squishybotz/Tinkerbelle Labs LLC Mountain View, CA Jan 2011-Dec 2014
Founder, *engage people to create low-cost, do-it-yourself projects. Special interests in environmental, robotic, and healthcare projects. Manufactured, wrote, and distributed a book.*

Intuitive Surgical Sunnyvale, CA Nov 2011-Jan 2014
Clinical Development Engineering Consultant, *Medical Research.*

General Electric Research Niskayuna, NY Summer 2007
Intern, *Spatial-Temporal Classification for People Localization.*

Lockheed Martin Space Corporation Sunnyvale, CA May 2004 - August 2004
Software Engineer, *Space Based Infrared Systems/Mobile User Objective System*

- Worked with architecture and development teams to support software requirements for Space Based Infrared Systems (SBIRS) program. Advisor: Christopher Chun
- Member of team that wrote winning proposal for multi-billion dollar contract (Mobile User Objective System).

Lockheed Martin Space Corporation Sunnyvale, CA January 2004 - May 2004
Intern, *Central Design Engineering*

- Worked in central design engineering writing/maintaining scripts and search engine.

Evergreen School District Vancouver, WA September 1999 - June 2000
TV Math and English tutor

- Live local cable television show, called Homework Helpline, where students K-12 call in to ask help on homework. Airs three nights a week.

EDUCATION

Johns Hopkins University Baltimore, MD on leave

- Ph.D. in Computer Science (ABD, Leave of absence)

Johns Hopkins University Baltimore, MD 2007

- M.S. in Computer Science
- Dissertation: System Design and Implementation of Visual Force Feedback and Virtual Fixtures in Robot-Assisted Surgical Systems: Evaluating Alternatives to Direct Force Feedback Using Augmented Reality, April 2007

Santa Clara University Santa Clara, CA 2004

- B.S. in Computer Engineering
- Dissertation: Haptic Integration of IBM Manipulator, May 2004

TEACHING EXPERIENCE (Taught or Co-Taught)

1. Computer Vision, Johns Hopkins University, Fall 2010
   Teaching Assistant
   Student Evaluations: None Collected

Number of students: 50 students (37 graduate and 13 undergraduate)
Role: Held office hours, conducted problem solving sessions, graded exams

2. Facebook 101: Developing Photo and Video Applications for Online Social Networks (new course), Johns Hopkins University, Intersession 2009
Instructor
Student Evaluations: None Collected
Number of students: 12 undergraduate students
Description: This experimental course is designed to teach students how to create and launch web 2.0 applications. The class provides an introduction to the field of computer vision, giving tools to detect or track objects in the environment. Class topics include social network interfaces – primarily facebook application interface (API), image processing, face detection, virtual environment and rendering methods. Students will work in small teams to conceptualize, develop, distribute, and market new applications to facebook users. Co-taught with Daniel Mirota.

3. Haptic Applications in Medical Robotics (new course), Johns Hopkins University, Intersession 2007.
Instructor
Student Evaluations: Mean teaching evaluation score of 4.85 out of 5.0
Number of students: 14 undergraduate students
An overview of cutting edge medical robotic technology and exploring the role of haptic (tactile and force) feedback in a surgical setting. Course work includes weekly lectures, hands-on laboratory exercises in addition to paper readings, discussions, and presentations. Co-taught with Dr. Panadda Marayong.

MENTORING EXPERIENCE

1. Taylor Harman. Women in Science and Engineering (WISE) Mentor to a Garrison Forest High School Student, Fall 2008. (*attending Loyola Maryland)*
2. James Woo. Modeling of surgical motions, Fall 2008.
3. Rahul Agarwal. Live surgical data recording and segmentation, Fall 2007-Spring 2008. (*attending Yale Medical School)*
4. Rebecca Ringle. Women in Science and Engineering (WISE) Mentor to a Garrison Forest High School Student, Spring 2006. (*attending Swathmore College*)

PATENTS

1. Provisional Patent with drive.ai, 2015
2. Michael Paris, Lucas Gordan, Tao Zhao, **Carol Reiley.** Vision Probe with Access Port. US 14/181,024, filed Feb 14, 2014.
3. Caitlin Q Donhow, Prashant Chopra, **Carol Reiley,** Tao Zhao, Dorin Panescu. Systems and Methods for Interventional Procedure Planning. US 14/144,232, filed Dec 30, 2013.
4. Gregory D. Hager, Balakrishnan Varadarajann, Sanjeev Khudanpur, Rajesh Kumar, **Carol E. Reiley** and Henry C. Lin. Method and System for Quantifying Technical Skill. Provisional United States patent application #JHU3210/PCT (filed March 20, 2009) International #PCT/US2010/028025

JOURNAL PUBLICATIONS

1. **C. E. Reiley**, H. C. Lin, D. D. Yuh, G. D. Hager. A Review of Methods for Objective Surgical Skill Evaluation, Surgical Endoscopy, accepted. [impact factor: 3.231]
2. L. Su, B. P. Vagvolgyi, R. Agarwal**, C. E. Reiley**, R. H. Taylor, and G. D. Hager. Augmented reality during robot-assisted laparoscopic partial nephrectomy: Toward real-time 3d-ct to stereoscopic video registration. Journal of Urology, 73(4):896-900, 2009. [impact factor: 3.952]
3. B. Vagvolgyi, **C. E. Reiley,** G. Hager, R. Taylor, and L.M. Su. Augmented Reality Using Registration of 3D Computed Tomography To Stereoscopic Video of Laparoscopic Renal Surgery. Journal of Urology, 179(4):241-241, 2008. [impact factor: 3.952]
4. **C. E. Reiley**, T. Akinbiyi, D. Burschka, A. M. Okamura, C. Hasser, D. Yuh, "Evaluation of Surgical

Tasks using Sensory Substitution in Robot-Assisted Surgical Systems." The Journal of Thoracic and Cardiovascular Surgery, Vol. 135, Issue 1, pp.196-202, January 2007. [impact factor: 3.037]

CONFERENCE PUBLICATIONS

1. **C. E. Reiley**, E. Plaku, G. D. Hager, C. C. G. Chen, Motion Generation of Robotic Surgical Tasks: Learning From Expert Demonstrations. Engineering in Medicine and Biology, 2010 (Accepted Abstract Oral)
2. **C. E. Reiley**, G. D. Hager, C. C. G. Chen, Skill Assessment for Robotic Surgery Using Statistical Models. Female Pelvic Medicine and Reconstructive Surgery 2010 (Presentation)
3. **C. E. Reiley**, G. D. Hager, Decomposition of Robotic Surgical Tasks: An Analysis of Subtasks and Their Correlation to Skill, MICCAI M2Cai workshop, 2009. (Poster)
4. B. Varadarajan, **C. E. Reiley**, H. C. Lin, S. Khudanpur, G. D. Hager, Data-Derived Models for Segmentation with Application to Surgical Assessment and Training, MICCAI, pages 426-434, 2009 (poster) [Acceptance Rate: 32%]
5. **C. E. Reiley**, G. D. Hager, Task versus Subtask Surgical Skill Evaluation of Robotic Minimally Invasive Surgery, MICCAI, pages 435-442, 2009 (poster) [Acceptance Rate: 32%]
6. **C.E. Reiley**, H.C. Lin, B. Varadarajan, B. Vagolgyi, S. Khudanpur, D. D. Yuh, and G. D. Hager, "Automatic Recognition of Surgical Motions Using Statistical Modeling for Capturing Variability", Medicine Meets Virtual Reality, 132:396-401, 2008 (Oral).
7. B. Vagvolgyi, **C. E. Reiley**, G. D. Hager, A. W. Levinson, L. Su, "Tumor Registration of Augmented Reality Overlay of a 3D CT to Real-time Stereoscopic Video During Laparoscopic Partial Nephrectomy", American Urological Association, 2007. [Acceptance Rate: 27%]
8. A.M. Okamura, L.N. Verner, **C.E. Reiley**, and M. Mahvash, "Haptics for Robot-Assisted Surgery", International Symposium of Robotics Research, *invited paper,* 2007 (Accepted).
9. B. Vagvolgyi, **C. E. Reiley**, G. D. Hager, A. W. Levinson, L. Su, "Toward Direct Registration of Video to Computed Tomography for Intraoperative Surgical Planning during Laparoscopic Partial Nephrectomy", World Congress of Endourology, 2007.
10. T. Akinbiyi**, C. E. Reiley**, S. Saha, D. Burschka, C. J. Hasser, D. D. Yuh, and A. M. Okamura. "Dynamic Augmented Reality for Sensory Substitution in Robot-Assisted Surgical Systems," 28th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, 2006, pp. 567-570 (Oral, Acceptance Rate 25%).

NON-REFEREED POSTERS

1. T.Gao, J. Ji, **C.E. Reiley**, B. Winters, L. Selavo, N. Whyms. "Advancing MET Through Intelligent Patient Monitoring" 3rd Annual Medical Emergency Team/Rapid Response Team Conference, 2007.
5. **C. E. Reiley** and A. M. Okamura. "Augmented Reality for Haptic Display in Robot-Assisted Surgical Systems", SWE, Kansas City, MO, October 2006. *Best Poster Finalist*
6. **C. E. Reiley.** "Dynamic Augmented Reality for Haptic Display in Robot-Assisted Surgical Systems", CRA-W DMP Reunion at the 2004 Grace Hopper Conference, Chicago, IL: October 2004.
7. **C. E. Reiley**. "Program Slicing for OpenMP Shared Memory Parallel Programs", University of Delaware Undergraduate Summer Research Symposium, August 2003.

EDITORIALS AND BOOKS

- Carol E. Reiley. "Making A Splash", Growth Mindset Children's Book, released April 2015.
- Robert Armiger, **Carol E. Reiley.** "Air Guitar Hero", MAKE Magazine vol. 29, Jan 2012.
- Garrick Orchard, Alex Russel, **Carol E. Reiley.** "Low Cost Blood Pressure Monitor System", MAKE Magazine vol. 29, Jan 2012.

- **Carol E. Reiley**, G. D. Hager. "Using Robots To Train The Surgeons Of Tomorrow" IEEE Spectrum Blog. June 13, 2011.

INVITED TALKS AND SEMINARS

1. TedxWanChaiWomens, 2015.
2. Makerfaire, 2012, 2013, 2015
3. Robogames, 2011.
4. TedxBaltimore, From Personal Computers to Personal Robots. 2011.
5. IEEE Robotics and Automation DC-NoVa chapter meeting, " Skill Assessment for Robotic Surgery (Language of Surgery)." University of Maryland, College Park, MD. April 19, 2010.
6. Mechanical Engineering Graduate Engineering Seminar, "Haptics and Vision in Surgical Robotics." Santa Clara University, Santa Clara, CA. February 13, 2008.
7. Robotics for JHU Alumni Event, "The Language of Surgery." Liberty Science Center, Newark, NJ. February 10, 2008.
8. Electrical Engineering Seminar, "Visual Force Feedback and Virtual Fixtures In Robot-Assisted Surgical Systems." Oregon Health and Science University OGI School of Engineering and Science, Beaverton, OR. August 21, 2007.
9. Computer Engineering Graduate Engineering Seminar, "Dynamic Augmented Reality in Robot-Assisted Surgical Systems." Santa Clara University, Santa Clara, CA. May 26, 2005.

AWARDS AND HONORS

1. **USA Science and Engineering Festival Nifty Fifty X-Stem,** Group of noted STEM professional to speak at schools, **2013.**
2. **USA Science and Engineering Festival Nifty Fifty,** Group of noted STEM professional to speak at schools, **2011-2012.**
3. **MAKE magazine,** First female engineer featured on cover for technical contribution and projects. Founder of Tinkerbelle labs for diy projects, 2012.
4. **National Science Foundation Graduate Research Fellowship.** For $122,500 over three years (2007-2010).
5. **Clare Booth Luce SWE Scholarship,** 2007-2008.
6. **Society of Women Engineers (SWE) Baltimore/Washington Scholarship**, 2006.
7. **Raymond M. Galantine Award**: Recognizes an outstanding engineering student who has demonstrated a commitment to putting into practice the Catholic and Jesuit ideal of people in the service of others, 2004.
8. **James F. Lincoln Arc Welding Foundation**, Div IV Silver Award, 2004.
9. **Best of Session**, Santa Clara University Interdisciplinary Engineering Session for Senior Capstone: Haptic Integration (force feedback) of an IBM manipulator, 2004.
10. **Faculty Recognition for Technical Excellence:** awarded to 8 seniors from the class of 2004 at Santa Clara University for completing a capstone design project that is distinguished by an exceptionally high degree of technical and scholarly achievement, 2004.
11. **National Society of Women Engineers (SWE) Scholarship**, 2004.
12. **Silicon Valley Engineering Council Engineering Education Scholarship**: recognition of engineering students for their dedication, focus, and commitment to engineering, 2004.
13. **Dean's Scholar**, The top accepted students in each academic division. 2000-2004.
14. **Bannan Merit Scholarship**, This scholarship is awarded to a limited number of students who have demonstrated high academic achievement and exemplify the best traditions of Santa Clara University in terms of leadership, integrity, and community service, 2000-2004.
15. **Chinese American Citizens Alliance Fred G. Lee Memorial Scholarship**, 2000.
16. **SouthWest Medical Hospital Junior Volunteer Health Auxiliary Scholarship**, volunteered over 500+

hours, 2000.

TRAVEL AWARDS

1. **JHU Alumni Association Community Action Grant**: Funded to buy robotic kits for low income high schools to participate in the JHU Robotics Systems Challenge, 2006-2007, 2008-2009 ($2000).
2. **GRASSROOTS Travel grant**, IEEE International Conference of Robotics and Automation (up to $500 to visit labs in Japan)
3. **JHU Digital Media Center Creative Use of Technology Grant**: "Input Devices for Developing Photo and Video Applications for Social Networks" ($500).
4. **SCU Dean's Fund**: Wrote proposal to win grant for senior design project, 2004 ($500).
5. **SCU Student Leadership Fund**: Grant to fund senior design project, 2004 ($500).
6. **Travel Award & Conference Attendee**, 2004 Grace Hopper Conference, October 2004.
7. **American Association of University Women** (AAUW) Conference for College Women Student Leadership Attendance Scholarship, 2003

LEADERSHIP AND PROFESSIONAL SERVICE

1. Engineering Computer Engineering Board, SCU, *Member,* 2014-present
2. Engineering Alumni Board, SCU, *Member,* 2008-2012.
3. IEEE Robotics and Automation, International, *Administrative Committee-Student Activities Chair*, organized activities for the member association board and student activities at IEEE ICRA and IROS conferences. Established mentoring program FIBRS, 2008-2010.
4. Computer Integrated Surgery Student Research Society, JHU, *Graduate Student Advisor,* 2007-2008.
5. Whiting School of Engineering Diversity Council, JHU, *Board Member*, initiated engineers appreciation week 2006-2007.
6. Computer Integrated Surgery Student Research Society and National Engineering Research Center Student Leadership Council, JHU, started Robotics Systems Challenge for high school students *President*, 2005-2007.
7. Women of Whiting Graduate Women's Organization, JHU, *Treasurer*, 2005-2006.
8. Computer Integrated Surgery Student Research Society, JHU, *Treasurer*, 2004-2005.
9. Engineering Executive Council, SCU, *Co-Chair*, 2003-2004.
10. Society of Women Engineers, SCU, *Vice President,* 2003-2004.
11. Association of Computing Machinery, *SCU, Founder and President*, 2002-2004.

INVITED OUTREACH PRESENTATIONS

1. Growth Mindset, Mountain View High School, Vancouver, WA. November 26, 2014.
2. Three hour college workshop, Mountain View High School, Vancouver, WA. October 3, 2006.
3. WISE college panel for Garrison Forest High School girls, Baltimore, MD. October 19, 2006.
4. Institution of Electrical and Electronic Engineers, Santa Clara University Student Chapter, Santa Clara, CA. June 2004.
5. Society of Women Engineers, Santa Clara University Student Chapter, Santa Clara, CA. May 2004.
6. College Panel, Wilcox High School, Santa Clara, CA. February 2004.

EDUCATIONAL OUTREACH ACTIVITIES

1. Robotics Systems Challenge, March 31st, 2007.
2. Robotics Systems Challenge, April 1st, 2006.
3. Computer Mania Day, April 9, 2005.
4. Surgical Lego Competition, Feb. 4, 2005.
5. HeadsUP What Is Engineering? Fair, January 27, 2005.
6. SWE/ACM Industry Night (Won Golden Gate SWE Regional 1nd place for event).
7. SWE Carnival: Showcased senior design project and robotics to 40 elementary school students.
8. Spearheaded STARS event: 60 middle school students learn about Autocad, Underwater Robotics, and basic science experiments. (Won Golden Gate SWE Regional 2nd place for event).
9. BotBall Competition, November 13, 2003.

PROFESSIONAL ACTIVITIES

- National Organizations: ACM, IEEE Robotics and Automation, AAAI, SWE, AAUW, MentorNet

IN THE MEDIA

Regarding Research

"A Glimpse Into the Future of Medicine," Johns Hopkins University Engineering Magazine, July 2009.
"Aiding Surgeons With Robots," Santa Clara University Stories, July 2008.
"More Than a Feeling," Johns Hopkins Magazine, April 2007.
"Adding Feeling to Robot-Assisted Surgery," National Institute of Biomedical Imaging and Bioengineering (NIBIB), January 29, 2007.
"da Vinci Robotic Surgical System Tool,"NIBIB-Video Gallery, November 2006.
"Researcher Gives Robotic Surgery Tools a Sense of Touch," Science Daily, Robotics Online, November 2006.
"Medicine by Design," Book by Fen Montaigne, May 17, 2006.

Regarding Courses Taught

"Intersession class teaches the art of Facebook applications," Johns Hopkins Newsletter, Feb 6, 2009.
"Face(book) Time at Hopkins," Baltimore Business Journal, Feb 6, 2009.
"Hopkins Students Take Course to Design Facebook Apps,"The Baltimore Sun, Feb 2, 2009.
"A Hand Up For Start-Ups,"The Washington Post, Feb 2, 2009.
"Facebook apps from college student competition - John Hopkins University," TheSocialNetworker blog, Jan 29, 2009.
"Big Draw: Student-Designed Robots Try 'Hands' at Creating Art,"JHU Gazette, Dec 13, 2004.

Regarding Service

"Women Interested In Science and Engineering (WISE) - Mentoring High School Girls in Research", Engineering Research Center Achievements Showcase May 2007.
"Robots navigate maze, surgery:Robotic Systems Challenge Draws Students from Area Schools," The Baltimore Sun,April 1, 2007.
"Researcher Heartens Students,"The Oregonian, Feb 9, 2007.

PERSONAL DATA

- Date of Birth: August 30th, 1982
- Place of Birth: Flint, MI, USA
- Spoken Languages: English (fluent) and Mandarin (limited)