

LEE STEARNS

CURRICULUM VITAE

DOCTORAL CANDIDATE | COMPUTER SCIENCE
UNIVERSITY OF MARYLAND, COLLEGE PARK
(240) 472-1030 | lee@leestearns.com | http://www.leestearns.com

PROFESSIONAL SUMMARY

I am a PhD candidate and research assistant with a research focus that spans multiple disciplines including computer vision and machine learning, human-computer interaction, and physical prototyping. I am currently working to complete my dissertation, which involves developing and evaluating a wearable camera system that augments the sense of touch to assist people with visual impairments throughout their daily lives.

I also provide consulting services for software and web development when my research schedule permits. I have designed and built utilities to process and visualize medical image data, as well as mobile and web applications to assist professional and amateur shooters in calculating ballistics while using a client's custom rifle scope.

EDUCATION

Present (Expected 2018)	Doctor of Philosophy, Computer Science University of Maryland, College Park Advisors: Dr. Jon E. Froehlich and Dr. Rama Chellappa
2012	Master of Science, Computer Science University of Maryland, College Park Advisor: Dr. Rama Chellappa
2009	Bachelor of Science, Computer Science Minor in Mathematics University of Maryland, College Park

AWARDS & SCHOLARSHIPS

2014	Received International Conference Student Support Award, Graduate School, University of Maryland
2014	Received John D. Gannon Travel Award, Department of Computer Science, University of Maryland
2008	Awarded "Outstanding Team Leader", Gemstone Program, University of Maryland
2008	Accepted into Corporate Scholars Program, University of Maryland
2005	Accepted into Gemstone Program, University of Maryland
2005	Awarded Presidential Scholarship, University of Maryland

RESEARCH & WORK EXPERIENCE

2013–Present **Graduate Research Assistant—Makeability Lab—University of Maryland, College Park**
Designed, built, and tested assistive technology for people with visual impairments, especially wearable cameras and other small sensors worn on the finger. Applications included reading and exploring printed text and recognizing on-body gestures to control a mobile device. Built prototype hardware using 3D printing, laser cutting, soldering, and low-fidelity prototyping. Developed algorithms to recognize content beneath the user's finger, including text, colors and textures, and skin or clothing patterns, as well as dynamic gestures.

2010–2013 **Graduate Research Assistant—UMIACS—University of Maryland, College Park**
Researched computer vision techniques for object recognition and camera motion tracking. Developed a prototype navigation system for the blind combining object and feature detection and tracking with inertial and GPS data, along with a speech menu and feedback system and directional audio cues.

2009–Present

Software Developer and IT Consultant—Self-employed, Laurel, MD

Develop desktop and mobile software and IT solutions for clients. Projects of interest include developing medical image viewing and processing techniques to assist in mapping the neural pathways in the human brain, and designing and implementing an interactive web and mobile application to demonstrate a client's targeting reticle.

2009

Software Development Intern—DfR Solutions, College Park, MD

Updated software for predicting the thermal output of circuit boards using the finite element method. Developed a tool to create 2D triangular and quadrilateral meshes of circuit boards for use with finite element software.

2008

Software Development Intern—Apptis, Inc., Bethesda, MD

Developed a web application for internal use to allow for easier interaction with portions of the company's database. Updated an outdated and sparsely documented internal hardware API for easier usage and to allow for new features.

2007–2008

Software Development Intern—Caramatic Systems, Inc., Annapolis, MD

Developed utilities to automate the backup of portions of the company's databases and file systems. Created an attendance tracking module for the company's online software package.

PUBLICATIONS

- 2016 L. Stearns, U. Oh, B. J. Cheng, L. Findlater, D. Ross, R. Chellappa, J. E. Froehlich, "Localization of Skin Features on the Hand and Wrist from Small Image Patches," in *Proceedings of the International Conference on Pattern Recognition (ICPR) 2016, (To Appear)*.
- 2016 L. Stearns, R. Du, U. Oh, C. Jou, L. Findlater, D. A. Ross, J. E. Froehlich, "Evaluating Haptic and Auditory Directional Guidance to Assist Blind People in Reading Printed Text Using Finger-Mounted Cameras," in *ACM Transactions on Accessible Computing (TACCESS), Oct 2016*.
- 2016 J. Hong, L. Stearns, T. Cheng, J. E. Froehlich, D. Ross, L. Findlater, "Evaluating Angular Accuracy of Wrist-Based Directional Guidance for Hand Movement," in *Proceedings of Graphics Interface (GI) 2016*.
- 2014 L. Stearns, R. Du, U. Oh, Y. Wang, L. Findlater, R. Chellappa, J. E. Froehlich, "The Design and Preliminary Evaluation of a Finger Mounted Camera and Feedback System to Enable Reading of Printed Text for the Blind," in *Proceedings of the European Conference on Computer Vision (ECCV) 2014, Workshop on Assistive Computer Vision and Robotics (ACVR)*.
- 2009 S. Caperna, C. Cheng, J. Cho, V. Fan, A. Luthra, B. O'Leary, J. Sheng, L. Stearns, A. Sun, R. Tessler, P. Wong, J. Yeh, "A Navigation and Object Location Device for the Blind," *Undergraduate Thesis, Gemstone Program, University of Maryland*.
- 2008 S. Caperna, C. Cheng, J. Cho, V. Fan, A. Luthra, B. O'Leary, J. Sheng, L. Stearns, A. Sun, R. Tessler, P. Wong, J. Yeh, B. Bobo, C. Tang, R. Chellappa, "Developing a Real-Time Identify-and-Locate System for the Blind," in *Proceedings of the European Conference on Computer Vision (ECCV) 2014, Workshop on Computer Vision Applications for the Visually Impaired (CVAVI)*.

TEACHING & MENTORING

- Fall 2016 Meena Sengottuvelu, Undergraduate Student
- Fall 2016 Alexander Medeiros, Undergraduate Student
- Summer 2016 Harry Vancao, Undergraduate Student
- Summer 2016 Jessica Yin, High School Student
- Summer 2016 Chuan Chen, High School Student
- Fall 2015 Eric Lancaster, Undergraduate Student
- 2012–2015 Team NAVIGATE (14 Undergraduate Students), Gemstone Program
- 2009–2012 Team FACE (14 Undergraduate Students), Gemstone Program