

Agata U. Kargol

Curriculum Vitae

715 Harvard Avenue

St. Louis MO 63130

+1 (504) 481 1373

✉ aukargol@wustl.edu

🌐 <http://www.cse.wustl.edu/~kargola/>

Citizenship Status: **US Citizen**

Education

- 2011–2015 **Master of Science in Computer Science** 3.46/4
Washington University in St. Louis, St. Louis, MO
Awards: 2012 NSF Graduate Research Fellowship Recipient
- 2007–2011 **Bachelor of Science in Computer Science** 3.615/4
University of Alabama, Tuscaloosa, AL
Honors: *cum laude*, University Honors Program, International Honors Program, Computer-Based Honors Program, University Fellows Experience, Dean's List
Minors: Mathematics, Computer-Based Honors Program, Telecommunication and Film

Languages

Fluent English, Polish

Programming Languages

Proficient Python, Matlab, JavaScript, HTML, CSS, C++, C, Bash
Familiar Perl, C#, Haskell, SmallTalk, VHDL, AVR, MIPS, MySQL

Technical Skills

Frameworks Amazon Mechanical Turk Framework, Django, Qt
Operating Systems GNU/Linux (8 years), Windows (16 years), Mac OS X (10 years), Robot Operating System (ROS, 2 years)
Software L^AT_EX, Matlab, Microsoft Office Suite, Adobe Photoshop, Apple Final Cut Pro
Certifications Apple Final Cut Pro 5 and 6

Professional Experience

- 2012–2015 **Student Researcher, Dr. Robert Pless** *Washington Univ. in St. Louis*
Worked with the Archive of Many Outdoor Scenes (AMOS), the world's largest archive of public outdoor webcams, which contains over 500 million images.
AMOS Development
 - Built and managed AMOS crowdsourced tasks with Amazon Mechanical Turk
 - Built Django tools for creation and management of Mechanical Turk tasks
 - Developed backend features within AMOS's Django framework as part of a team
 - Required Python, JavaScript, HTML, CSS, Amazon Mechanical Turk, Django*Pedestrian Detection in Webcam Imagery for Public Health Applications*
 - Explored effectiveness of existing machine learning tools and related algorithms for pedestrian detection in webcams
 - Improved detection algorithms through background subtraction and shadow detection methods to overcome webcam-specific problems
 - Required Python, Matlab, shell scripting, C++

- 2011-2012 **Student Researcher, Dr. Bill Smart** *Washington Univ. in St. Louis*
 Developed applications for Willow Garage's PR2 robot to allow the PR2 to act a surrogate for a paraplegic user.
- Created point-and-click interface for object manipulation, which was designed to be incorporated into a larger software application suite
 - Learned about robot functionality and limitations, interface design based on user requirements, and the mathematical concepts of robot visual processing
 - Required ROS, Python, C++, Qt framework, OpenCV
- 2010-2011 **Student Researcher, Dr. Monica Anderson** *Univ. of Alabama*
 Explored effectiveness of using robots and Python in introductory computer science class.
- Created and supported a simplified API to control iRobot Creates
 - Helped teach two sections of an introductory computer science class
 - Required Python
- 2010 **Student Researcher, Dr. Mark Thomas M.D.** *Univ. of Alabama*
 Worked in a group lto expand campus ADHD resources available to students.
- Assisted in building a website, filmed and edited the site's student stories section
 - Required HTML, CSS, Apple Final Cut Pro
- 2008-2009 **Student Researcher, Dr. George Daniels** *Univ. of Alabama*
 Analyzed how news outlets use RSS feeds.
- Built RSS archiver, coded basic text processing for further statistical analysis
 - Required C++, C#, SPSS

Awards

- 2012 NSF Graduate Research Fellowship Recipient *Washington Univ. in St. Louis*
- 2011 Dept. of Computer Science Capstone Engineering Society Outstanding Senior *Univ. of Alabama*
- 2011 ACM Chapter Outstanding Senior *Univ. of Alabama*
- 2010-2011 NSF STEM Grant for Increasing Diversity in Computing Recipient *Univ. of Alabama*
- 2007-2011 Academic Elite Scholarship Recipient *Univ. of Alabama*
- 2007-2011 Drummond Company Gift Scholarship Recipient *Univ. of Alabama*

Conferences and Workshops

- Nov 2013 SenseCam *San Diego, CA*
Invited expert panelist on the "Frameworks to Guide Image Annotations" panel
- Jun 2013 Computer Vision and Pattern Recognition (CVPR) *Portland, OR*
- Jun 2012 Computer Vision and Pattern Recognition (CVPR) *Providence, RI*
- May 2012 PR2 Workshop Participant, hosted by Willow Garage *Freiburg, Germany*
- Mar 2011 Special Interest Group on Computer Science Education (SIGCSE) *Dallas, TX*
- Nov 2010 Engineer of the Future 3.0 *University of Illinois Urbana-Champaign, IL*
- Apr 2010 Convention of the Southern States Communication Association *Memphis, TN*
- Apr 2010 Theodore Clevenger Undegraduate Honors Conference *Memphis, TN*

Publications

A. Hipp, D. Adlakha, R. Gernes, A. Kargol, and R. Pless, "Learning from outdoor webcams: Surveillance of physical activity across environments," in *Workshop of Big Data and Urban Informatics*, 2014.

A. Hipp, D. Adlakha, R. Gernes, A. Kargol, and R. Pless, "Do You See What I See: crowdsource annotation of captured scenes," in *SenseCam*, 2013.

A. Ayala, D. Alexander, A. U. Kargol, L. Malkinski, and A. Kargol, "Piezoelectric micro- and nanoparticles do not affect growth rates of mammalian cells in vitro," *Journal of Bionanoscience*, vol. 8, 2014.

A. Kargol, E. Dillon, and M. Anderson, "Using robotics to teach computer science: transition from PREOP to python," in *University of Alabama Undergraduate Research Conference*, 2011.

D. Lewis, B. Langston, A. Kargol, M. Thomas, and M. Harcrow, "Developing a repository for campus adhd resources," in *University of Alabama Undergraduate Research Conference*, 2010.

A. Kargol, "RSS feeds as a measure of news outlet behavior: A practical method of analysis," in *Theodore J. Clevenger Undergraduate Honors Conference*, 2010.

Select Courses

Computer Science	Advanced Mobile Robotics, Computer Vision, Computational Photography, Computation Geometry, Computer Graphics, Advanced Machine Learning
Computer Engineering	Computer Systems Architecture, Digital Logic, Microcomputers, Computer Architecture
Mathematics	Calculus 1/2/3, Applied Matrix Theory, Linear Algebra, Discrete Math, Statistical Methods in Analysis, Theory of Probability

Leadership

2013-2012	Computer Science Graduate Student Association	<i>Secretary, President</i>
2011-2010	University of Alabama Chapter of the ACM	<i>Treasurer, Vice-President</i>