Agata U. Kargol

Curriculum Vitae

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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 LaTeX, 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

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	*Univ. of Alabama*
2007-2011	Academic Elite Scholarship Recipient	*Univ. of Alabama*
2007-2011	Drummond Company Gift Scholarship Recipient	*Univ. of Alabama*

Publications

[1] 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.

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

[3] 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.

[4] 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.

[5] 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.

[6] 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