

Joseph E. Roth

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Research Interests

Computer Vision, Biometrics, Pattern Recognition, and Machine Learning.

Education

Ph.D. Candidate, Computer Science & Engineering 2011 - Present
Michigan State University, East Lansing, MI GPA 3.95
Committee: Xiaoming Liu (chair), Anil K. Jain, Arun Ross, Hayder Radha

Bachelor of Science in Computer Science, minor in Mathematics Dec. 2010
Grand Valley State University, Allendale, MI GPA 3.96
Magna cum laude, Honor's College

Professional Experience

Research Assistant - Computer Vision Lab 2012 - Present
Michigan State University, East Lansing, MI

- Developed biometric technologies for: 3D face reconstruction from photo collections, typing behavior continuous authentication, hair recognition, and person re-identification from surveillance imagery.
- Collected a longitudinal, visual and audio dataset of unconstrained typing.
- Utilized the high-performance computing center to increase efficiency of experimental results.

Software Craftsman - Atomic Object 2010 - 2011
Grand Rapids, Michigan

- Managed projects including client expectations, delegation of responsibility, and project backlog.
- Collaborated with other skilled programmers, designers, and testers to create custom software for embedded, web, and mobile applications.

Undergrad Research Assistant - Mobile Applications and Services Lab 2009 - 2010
Grand Valley State University, Allendale, MI

- Worked on a Motorola grant analyzing mobile technology's benefit on bricks and mortar retail stores.
- Developed software for iPhone, Android, and Blackberry devices.

Independent Contractor 2008 - 2011

- Contracted with e4 Media Group and Ninjitsu Web to develop web applications.
- Developed websites for various clients.

Publications

Journals

- Joseph Roth, Xiaoming Liu, Arun Ross, and Dimitris Metaxas, "Investigating the Discriminate Power of Keystroke Sound," IEEE Transactions on Information Forensics and Security, Accepted Nov. 2014.
- Joseph Roth, Xiaoming Liu, and Dimitris Metaxas, "On Continuous User Authentication via Typing Behavior," IEEE Transactions on Image Processing, Vol. 23, No. 10, pp. 4611-4624, Oct. 2014.

Conferences

- Joseph Roth and Xiaoming Liu, "On the Exploration of Joint Attribute Learning for Person Re-identification," in Proceedings of the 12th Asian Conference on Computer Vision (ACCV), Singapore, Nov. 1-5, 2014.
- Joseph Roth and Xiaoming Liu, "On Hair Recognition in the Wild by Machine," in Proceedings of the 28th Conf. AAAI, Quebec City, CA, July 27-31, 2014. (Oral presentation)
- Joseph Roth, Xiaoming Liu, Arun Ross, and Dimitris Metaxas, "Biometric Authentication via Keystroke Sound," in Proceedings of the 6th IAPR International Conference on Biometrics (ICB), Madrid, Spain, June 4-7, 2013. (Oral presentation)

Skills

Programming Languages

Matlab	C/C++/Objective C	Java
Python	Ruby	PHP

Other

Latex	Git / SVN Version Control	HTML/CSS/Javascript
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Awards

- Best Demo Award, BTAS 2013
- Beshgetour Engineering Fellowship, 2011
- ACM Programming Contest (2009, 2010, 2011) - 2nd Place Team in Michigan
- Undergraduate Scholarships:
 - Presidential Scholarship, 2007 - 2010
 - Award for Excellence, 2007 - 2010
 - Computer Science Department Scholarship, 2007
 - Atomic Object Scholarship, 2010
- Finalist for the Frederik Meijer Honor's College Outstanding Senior Award, 2010

Teaching Experience

CSE 420 - Computer Architecture (TA) Spring 2013

- Led lab section where students created a simulated MIPSlike CPU.
- Taught two class sections when teacher was out of town.
- Implemented an automated grading system to improve grading efficiency and consistency.

CSE 450 - Compilers (TA) Fall 2012

- Led projects and hosted office hours to create a lexer, parser, and interpreter.

CSE 803 - Computer Vision Fall 2014

- Guest lecturer for two weeks while professor traveled for conferences.

Service

ACM Programming Team Mentor

Helped lead practice and teach undergraduate students data structures and algorithms.

Professional Societies

IEEE Student Member
AAAI Student Member