Evan G. Shelhamer

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Research Interests

Computer Vision, Machine Learning, Information Theory,
Early Human Vision

Education

University of Massachusetts Amherst (Commonwealth College)

B.S. Computer Science, with Departmental Honors & Commonwealth Honors
B.S. Psychology, with Commonwealth Honors
2012 expected graduation

GPA: 3.87 / 4.0

Undergraduate Thesis: Information-Theoretic Unsupervised Visual Segmentation

Courses: Applied Information Theory (graduate), Computer Vision (graduate), Knowledge Representation & Data Mining, Artificial Intelligence, Algorithms, Discrete Mathematics, Statistics I, Probability, Linear Algebra, Behavioral Decision Making, Behavioral Neuroscience (honors), Cognitive Psychology, Syntax (honors)

Research Experience

CS Undergraduate Research Assistant, UMass Computer Vision Lab 2010–Present

Under Professor Learned-Miller, I have completed two summers through the NSF REU Award and remain in the lab during university semesters.

F3DB: I was responsible for data collection for this in-progress data set for 3D pose estimation of faces (the successor to the FDDB de facto standard in face detection). I worked independently to design, implement, and assess a large scale facial pose annotation system on Mechanical Turk. I drafted a description of my work for the in-progress technical report and created figures. I was advised by Professor Learned-Miller and had discussions with Vidit Jain, a PhD student at the time and a co-creator of FDDB.

Character Alignment for Scene Text Understanding: I worked closely with PhD student Jacqueline Feild on the character alignment & similarity-scoring portion of a scene text recognition system. I implemented alignment via a new probabilistic representation developed by Professor Learned-Miller; I then identified weaknesses in the representation, devised and assessed alternative alignment procedures with the same representation, and developed a method for selecting parameters on a per-alignment basis. I am 2nd author on our paper submitted to Computer Vision & Pattern Recognition 2012.

Developer & Consultant, UMass Sensors & Systems Lab 2010

Mobile Gulf Observatory was a citizen science project used by NOAA to monitor the environmental impact of the gulf oil spill. I designed & developed the web prototype and advised the team about large scale web app performance and schema.

CS Research Practicum, Hampshire College Cognitive Science Fall 2009

I led a team of three undergraduate students to synthesize a model of the evolution of altruism combining the separately-researched mechanisms of tag mediation and altruistic punishment. I co-reviewed a paper submitted for publication in *Evolutionary Computation* with Professor Lee Spector of Hampshire College at his request.

Psych Research Assistant, UMass NeuroCognition & Perception Lab 2009-2010

I developed a brain activity data processing tool that increased robustness of statistical analyses by removing noise. After discussing visual event order perception with PhD candidate Patrick Taylor, I designed, assembled, and programmed a novel apparatus for recording time order judgements of visual stimuli during brain activity recording.

Conference Publications

J. Feild, E. Shelhamer, E. Learned-Miller. 'Improving Scene Text Recognition with Integrated Segmentation and Recognition'. Submitted to IEEE Conference on Computer Vision and Pattern Recognition, 2012.

Honors & Awards

- Association for Computing Machinery / Upsilon Pi Epsilon Student Scholarship: one of four 2011 recipients of this national award for academic achievement and service to computer science (outreach & education)
- UMass Amherst C.D. Youngren Research Award: awarded for research activity and excellence in natural sciences & mathematics to a single undergraduate annually
- UMass Amherst Cisco Award for Outstanding Achievement as a Junior: one of four recipients chosen by faculty panel based on my coursework, research, and other departmental activities
- National Science Foundation Research Experience for Undergraduates Award 2010-2011
- ACM International Collegiate Programming Contest: placed 4th in the 2011 Northeast Regional (1st place in Local), and 5th in the 2010 Northeast Regional (in top three in Local)
- Commonwealth College Honors Program & Computer Science Honors
- Psi Chi national psychology honors society member
- Robert C. Byrd Scholarship: a national four-year scholarship for academics & leadership
- David & Kathleen Scott Abroad Award: travel stipend for study abroad in Paris

Leadership & Outreach

- I am computer science representative to the College of Natural Sciences deans' student committee
- I was selected by the deans to give a talk to over 1,500 incoming College of Natural Sciences students based on my enthusiasm & advocacy of science and computer science education.
- I was selected by the department to give a short talk on "How to Survive in CS" and serve on a discussion panel for a freshman & sophomore CS majors meeting.
- I run computer science info sessions with faculty at open houses and new student orientations, and give personal tours of the department to prospective students and families.
- I am Chair of UMass ACM student chapter and webmaster of the chapter site.
- I am on the UMass ACM ICPC programming team–I have helped recruit students for the team and have run practice sessions with our faculty advisor.
- I organized and ran the first UMass hackathon with the other ACM officers, which attracted over 75 students for an eight hour programming session. This included new students (freshman and international students) to welcome them and give them a head start with their studies.

Work Experience

Developer & Owner, Imaginary Number 2005-2011

Design and develop software & apparatus for psychology & computer science research. Create web sites & applications for businesses and non-profits. Administrate linux server systems.

Web Developer & Architect, UMass Off-Campus Housing 2009-2011

Reformed 60,000+ lines of code legacy application to model-view-controller architecture. Closed 200+ issues and made 400+ commits. Wrote staff training application manual, produced video tutorials, and communicated directly with customers. Automated collection of housing, demographic, and usage statistics.

Language

Fluency in written French, proficiency in spoken language
Semester abroad by direct enrollment in Université de Paris VII Denis–Diderot
French Minor