AHNA GIRSHICK

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Data Scientist and User Researcher with passion for human behavior, machine learning and data visualization

- Experienced at extracting actionable insights from lab and crowdsourced data, and diverse data sets including photos, human image perception and sensory integration, user behavior, music, healthcare, social networks, and Wikipedia
- Scientific authority on human visual perception / interaction with 2D & 3D displays with 15+ research articles in top journals (*Nature Neuroscience*, *J Vision*, *SIGGRAPH*) and over 1000 citations
- Trained in machine learning techniques including regressions, random forests, bootstrapping, model comparison, data preparation, cross-validation, deep learning, convolutional neural nets
- Expert in designing, conducting and analyzing randomized controlled experiments, user interviewing, usability testing
- Experience and strong design aesthetic; user interface and data visualizations were shown at Museum of Modern Art (NY)
- Strategic in aligning data science and product priorities to maximize impact

Education

Ph.D. in Vision Science, University of California, Berkeley, CA, 2007, GPA 3.9/4.0
M.S. in Computer Science with minors in Cognitive Psychology and Scientific Computation, University of Minnesota, Twin Cities, MN, 1996, GPA 4.0/4.0
B.S. in Computer Science, University of Minnesota, Twin Cities, MN, 1993, GPA 3.8/4.0

Tools

Python, scipy, numpy, scikit-learn, pandas, NLTK, SQL, Javascript, Matlab, HTML, CSS, d3, R, MixPanel, A/B testing, C++, C, OpenGL, Mathematica, Lisp, Mechanical Turk

Experience

Computational Genomics Scientist, Ancestry DNA, San Francisco, CA. August 2016 - present
- Applying machine learning and computer vision techniques to Ancestry's vast genealogy and genetic data

Head of Product, ENLITIC, San Francisco, CA. January 2015 - April 2016
Named to MIT Tech Review's 50 Smartest Companies 2015 and 2016
- Manage a groundbreaking AI product that uses the latest advances in machine learning and deep learning to make radiology faster, more accurate, cheaper, and more accessible
- Conduct user and product research to rapidly iterate and improve upon our MVP
- Coordinate constraints of doctors, business, deep learning engineers to develop product strategy and roadmap

Senior Data Scientist, ENLITIC, San Francisco, CA. August 2014 - January 2015
- Developed medical training datasets of radiology images and reports for deep learning algorithms
- Researched how to adapt open-source deep learning tools to large 3D medical images
- As the company's first employee, helped build the company's strategy and processes across branding, marketing, PR (*WSJ, New York Times, WIRED, MIT Tech Review*), hiring (22 employees), evangelizing, go-to-market planning, market research, client pitches, investor pitches (raised $15M), and company culture

Data Science Fellow, INSIGHT DATA SCIENCES, Palo Alto, CA. June - July 2014
- Built a web app to rate the quality of Wikipedia pages using natural language processing and machine learning (Python, SQL, AWS, scikit-learn, NLTK, Bootstrap, Flask, MediaWiki API, Beautiful Soup)

Senior Product Manager, SNIBBESTUDIO.COM (now Eyegroove), San Francisco, CA. 2012-2013
- Managed team of engineers & designers to create interactive music and visualization apps for major artists (including Björk, Philip Glass, Metric, Passion Pit, Feist) and the underlying technical pipeline
- Built product plans, conceptualized app functionality, designed UI/UX, spearheaded social and real-time app usage analytic integration, and contributed to production code in Objective C and C++
- Oversaw cross-platform app development for iOS, Mac, Android, Windows, and LEAP Motion

- Received two Webby Awards, exhibited at the Museum of Modern Art, NY, press from *WIRED*, *Rolling Stone*, and won Apple's App Store Best App of the Year Award

Computer Science Postdoctoral Fellow, UNIVERSITY OF CALIFORNIA, Berkeley, CA. 2011-2012
- Researched optimizing human perception of visualizations of large datasets using Mechanical Turk, and machine learning of advertising styles, with "MacArthur Genius" Prof. Maneesh Agrawala

Neural Science and Psychology Postdoctoral Fellow, NEW YORK UNIVERSITY, New York, NY. 2008-2010
- Awarded a three-year NIH Fellowship, published results in *Nature Neuroscience* that received press in *Science News*, *NPR*, *Nature*
- Responsible for development of Bayesian machine learning model to reverse-engineer the brain's expectations about the structure of visual environment using optimization, bootstrapping and model comparisons
- Performed behavioral experiments to measure human expectations about the world's visual imagery
- Measured actual structure of our visual environment in photographs using computer vision techniques
- Simulated an artificial neural network whose behavior matches human perceptual biases

Vision Science Graduate Student Researcher, UNIVERSITY OF CALIFORNIA, Berkeley, CA. 2001-2007
- Received a four-year competitive DOE Computational Sciences Fellowship to research the brain's mechanisms of integrating sensory (visual, auditory, haptic) input and perception of images and digital displays
- Published results in *Nature Neuroscience*, *SIGGRAPH* and received press in *NPR* and *New York Times*
- Developed Bayesian machine learning models of visual perception of virtual reality, 2D and 3D displays, and the sensory integration of multiple sources of information (stereo, perspective, focus, haptics)
- Designed and conducted visual psychophysics experiments in the laboratory using C, C++, OpenGL
- Analyzed results and simulated neural computations in Matlab to validate hypotheses

Research Assistant, NISSAN CAMBRIDGE BASIC RESEARCH AT M.I.T., Cambridge, MA. 1999-2001
- Programmed pioneering car-mounted computer vision system to predict 3D road geometry for self-driving cars
- Conducted randomized controlled experiments on the use of information in human reach and locomotion

Computer Science Research Assistant, UNIVERSITY OF MINNESOTA, Minneapolis, MN. 1998-1999
- Researched why traditional illustrators depict 3D shapes better than some computer renderings, and designed an algorithm to mimic traditional illustration styles using C++ and OpenGL

Data Visualization Intern, SILICON GRAPHICS (SGI) Eagan, MN. Summer 1998
- Programmed prototypes for scientific visualization and high-performance computing in C++ and OpenGL

Data Visualization Intern, XEROX PARC & INXIGHT SOFTWARE, Palo Alto, CA, 1997
- Programed commercial prototypes (C++, OpenGL) of groundbreaking information visualization research (Hyperbolic Browser, Cone Tree, Perspective Wall) and conducted research on users' eye movements

Representative Publications

Girshick, AR, MS Landy, EP Simoncelli. Cardinal rules: visual orientation perception reflects knowledge of environmental statistics. *Nature Neuroscience*, 14:926-932. (2011)

Burge, J, AR Girshick, MS Banks. Visual-haptic adaptation in the absence of feedback is determined by relative reliability. *Journal of Neuroscience*, 30(22): 7714-21. (2010)

Girshick, AR, MS Banks. Probabilistic combination of disparity and texture slant information: weighted averaging and robust estimation as optimal percepts. *Journal of Vision*, 9(9):8. 1-20. (2009)

Hoffman, DM, AR Girshick, K Akeley, MS Banks. Vergence-accommodation conflicts hinder visual performance and cause visual fatigue. *Journal of Vision*, 8(3):33, 1-30. (2008)

Vishwanath, D, AR Girshick, MS Banks. Why pictures look right when viewed from the wrong place. *Nature Neuroscience*, 8(10), 1401-10. (2005)

Akeley, K, SJ Watt, AR Girshick, MS Banks. A stereo display prototype with multiple focal distances. *(SIGGRAPH) ACM Transactions on Graphics*, 23 (3), 804-11. (2004)

Girshick, AR, V Interrante, S Haker, T Lemoine. Line direction matters: An argument for the use of principal directions in 3D line drawings. *ACM Non Photorealistic Animation & Rendering*, 43-52. (2000)