Eric Kim

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Education

University of California, Los Angeles — Computer Science, M.S. (2013 – 2016)
Advisors: Professor Demetri Terzopoulos, Dr. M. Alex O. Vasilescu (Tensor Vision Technologies)
Thesis: "A Part-Based, Multiresolution, TensorFaces Approach to Image-Based Facial Verification"
University of California, Berkeley — Computer Science, B.A. (2007 – 2011)

Key Skills

Languages: Python, C/C++, Scala, Matlab, Java, Javascript, HTML, CSS, PHP, Scheme, x86_64, MIPS.
Specializations: Computer vision, deep learning, face recognition, machine learning, medical imaging.
Libraries: Caffe, Caffe2, Tensorflow, pytorch, numpy, scipy, OpenCV, Spark

Experience

Software Engineer — January 2017 – Present
Pinterest, Inc. — *Discovery, Visual Search*
As lead of the object detection group, I apply the state of the art in computer vision to extract a rich visual understanding of Pins. Implemented and launched a product feature "Lens your Look" that unifies text search with visual search to recommend outfits, and wrote a blog post describing the technical work. Designed and implemented a scalable, efficient Spark feature extraction pipeline that extracts visual signals on the billions of Pinterest images within hours.

Graduate Researcher, Intern — September 2014 – June 2016
University of California, Los Angeles — *Department of Computer Science*
Tensor Vision Technologies
Analyzed faces in a multiresolution, part-based multilinear framework, and improved face verification results by 13% on the "Labeled Faces in the Wild" dataset relative to previous multilinear work (79% overall).

Research Programmer — January 2016 – December 2016
University of California, Los Angeles — *School of Dentistry*
Developed a statistical model of shape and appearance to perform bone contour segmentation of 3D medical imaging data. Quantitatively determined statistically significant facial surgery effects on facial structure. This work led to a publication.

Research Assistant — May 2011 – August 2013
University of California, Berkeley — *Department of Computer Science*
Led the development of an open-source election auditing software: OpenCount. Utilized computer vision for automatic ballot tallying: image registration, digit recognition, barcode decoding. Successfully performed pilot audits in California counties.

Teaching Assistant — May 2010 – June 2016
University of California, Berkeley — *Department of Computer Science*
University of California, Los Angeles
Taught undergraduate computer science courses, spanning: Python, Scheme, Java, C, C++, and x86_64. Duties included holding sections, developing course materials, grading, and supervising office hours. Additional teaching details here.

Additional Projects

- *FourVoices*: An automatic music generator. Using principles of music theory, I transformed the music generation problem into a set of constraints and variables, which I solve with a general-purpose constraint satisfaction solver. Hosted on GitHub, the project features a wiki and tutorials on usage. (Python)
- Handwriting recognition: Implemented an adaptive deformable spline model to recognize handwritten characters using appearance and shape information. (Matlab)
- Wrote a popular tutorial on kernel methods as used in machine learning: *"Everything You Wanted to Know about the Kernel Trick (But Were Too Afraid to Ask)"*.

Academic Papers

"Three-dimensional soft tissue analysis of the face following micro-implant-supported maxillary skeletal expansion," Sara Abedini, Islam Elkenawy, Eric Kim, Won Moon. *Progress in Orthodontics*, 2018. *(Accepted, publication pending)*

"Improved Support for Machine-Assisted Ballot-Level Audits," Eric Kim, Nicholas Carlini, Andrew Chang, George Yiu, Kai Wang, David Wagner. *EVT/WOTE 2013*, August 2013.

"Operator-Assisted Tabulation of Optical Scan Ballots," Kai Wang, Eric Kim, Nicholas Carlini, Ivan Motyashov, Daniel Nguyen, David Wagner. *EVT/WOTE 2012*, August 2012.

"An Analysis of Write-in Marks on Optical Scan Ballots," Theron Ji, Eric Kim, Raji Srikantan, Alan Tsai, Arel Cordero, and David Wagner. *EVT/WOTE 2011*, August 2011.