Eric Kee erickee@gmail.com — erickee.com

EDUCATION

Columbia University **2013 – 2014**
Postdoctoral Fellow, Computer Science (advisor: Prof. Shree Nayar)

Dartmouth College **2007 – 2013**
Ph.D., Computer Science (advisor: Prof. Hany Farid)

Virginia Tech **2001 – 2003**
M.S., Computer Engineering (advisor: Prof. Lynn Abbott)

Virginia Tech **1996 – 2001**
B.S., Computer Engineering

EMPLOYMENT

Uber Advanced Technologies Group, R&D Team **2016 – 2020**
Research and Development, Self-driving

- I currently develop computer vision and machine learning algorithms for perception in autonomous vehicles.

Avametric, Physical Simulation (advisor: Prof. James O'Brien; Khosla) **2015 – 2016**
Research Scientist

- Optimized linear models for fitting human body models to point cloud data.
- Derived numerical methods for fitting geometric models to body dimensions.

Facebook, Computational Imaging Group **2014 – 2015**
Research Scientist

- Developed and numerically optimized Facebook Swipeable Filters.
- Developed and trained photo clustering algorithm for Facebook Collages.

Adobe, Creative Technologies Lab (CTL) **Summer 2010**
Ph.D. Intern, Image Deblurring

- Designed model for spatially varying optical blur and camera calibration.
- Published work in International Conference for Computational Photography.

Johns Hopkins University, Applied Physics Laboratory (APL) **2004 – 2007**
Research Engineer, Image/Video Forensics

- Developed proof-of-concept image/video processing systems.

Central Intelligence Agency, National Reconnaissance Office **2003 – 2004**
Project Management Engineer

- Guided contractors, and developed plans to mitigate engineering risks.

IBM **1998 – 2000**
Computer Engineering Intern

- Developed BIOS code for Pentium machines.
- Developed embedded microcode for Windows peripheral devices.

SKILLS AND SUBJECTS

Python, Pytorch, C++, Spark, Tensorflow, GIT, Matlab. Broad background with topics in: computer vision, machine learning, numerical optimization, computational imaging, and image forensics. Equally comfortable in math, numerical programming, and software engineering.

HONORS

Dartmouth Computer Science nominee, H. Croasdale Award, Academic Excellence 2013
NSF Graduate Research Fellowship, Honorable Mention 2008
Dartmouth College, Presidential Fellowship 2007

Johns Hopkins University, APL, Supervisory Achievement Award,	2006–2007
Central Intelligence Agency, National Reconnaissance Office, S. Team Award	2004
Virginia Tech, Honors, Magna Cum Laude	2001

PUBLICATIONS

Thomas Yerxa, **Eric Kee**, Michael DeWeese, Emily Cooper. Efficient Sensory Coding of Multidimensional Stimuli, *PLOS Computational Biology*, 2020.

Davi Frossard, **Eric Kee**, Raquel Urtasun. DeepSignals: Predicting Intent of Drivers Through Visual Attributes, *International Conference on Robotics and Automation*, 2019.

Greg Meyer, Ankit Laddha, **Eric Kee**, Carlos Vallespi-Gonzalez, Carl K. Wellington. LaserNet: An Efficient Probabilistic 3D Object Detector for Autonomous Driving, *Computer Vision and Pattern Recognition*, 2019.

Eric Kee. Uniform Transformation of Non-Separable Probability Distributions, *arXiv preprint arXiv:1609.01982*, 2016.

Tiago Carvalho, Hany Farid, **Eric Kee**. Exposing Photo Manipulation From User-Guided 3-D Lighting Analysis, *Proceedings SPIE, Media Watermarking, Security, and Forensics*, 2015.

Eric Kee, James O'Brien, and Hany. Farid. Exposing Photo Manipulation from Shading and Shadows. *ACM Transactions on Graphics*, 2014

Eric Kee, Photo Forensics from Partial Constraints. *PhD thesis, Dartmouth College*, 2013.

Eric Kee, James O'Brien, and Hany Farid. Exposing Photo Manipulation with Inconsistent Shadows. *ACM Transactions on Graphics*, Presented at SIGGRAPH 2013.

Eric Kee and Hany Farid. A Perceptual Metric for Photo Retouching. *Proceedings of the National Academy of Sciences*, 08(50): 19907-19912, 2011.

Eric Kee, Micah Kimo Johnson, and Hany Farid. Digital Image Authentication from JPEG Headers. *IEEE Transactions on Information Forensics and Security*, 6(3):1066-1075, 2011.

Eric Kee, Sylvain Paris, Simon Chen, and Jue Wang. Modeling and Removing Spatially-Varying Optical Blur. *IEEE International Conference on Computational Photography*, 2011.

Eric Kee and Hany Farid. Exposing Digital Forgeries from 3-D Lighting Environments. *IEEE International Workshop on Information Forensics and Security*, 2010.

Eric Kee and Hany Farid. Digital Image Authentication from Thumbnails. *SPIE Symposium on Electronic Imaging*, 2010.

Heather Wishart, **Eric Kee**, James Ford, John MacDonald, Sam Aney, and S. LoVerde. A Novel Approach for Semi-automated Segmentation of MS Lesions on FLAIR Imaging: Reliability and Clinical Correlates. *Annual Meeting of the International Neuropsychological Society*, 2010.

Eric Kee and Hany Farid. Detecting Photographic Composites of Famous People. TR2009-656, Department of Computer Science, Dartmouth College, 2009.

Eric Kee and Hany Farid. Printer Profiling for Forensics and Ballistics. *ACM Multimedia and Security Workshop*, 2008.

Eric Kee. and Sarah Airey. An adaptive genetic algorithm, *Proceedings of the Genetic and Evolutionary Computation Conference*, 2001.

PATENTS

Hybrid-View Lidar-Based Object Detection, 15/907,966, 2018
Detecting image inconsistencies, 8,965,106, 2015
Perceptual Rating Of Digital Image Retouching 13,683,954, 2013
Lens Modeling 12/957,300, 2010

PRESS

Fancy Figuring Ferrets Out Fake Photos in **Scientific American**, 8.20.13
Software That Exposes Faked Photos in **New York Times**, 8.19.13
The Future of Graphics and Gaming in **MIT Technology Review** 7.29.13
Photo Retouching on **BBC World Service**, 12.20.11
New technology to catch Photoshop fakes in **NPR Marketplace** 12.19.11
Exposing Digitally Doctored Photos in **Boston Globe**, 12.5.11
Retouching Reality in **TIME Magazine**, 11.30.11
They Aren't That Thin - Digital Retouching Gets Graded in **NPR**, 11.30.11
The Secrets of Photoshop Unmasked in **The Independent**, 11.29.11
'Perfect' celebrity photos to get a reality check in **NBC Today**, 11.28.11
Image Tool Catches Fashion Industry Photo Alterations in **Wired**, 11.28.11
Photoshopped or Not? A Tool to Tell in **New York Times**, 11.28.11
Computer model spots image fraud in **Nature**, 11.28.11
Digital retouching: Physical Implausibility in **The Economist**, 11.28.11
Exposed: Software reveals how much photos have been retouched in **The Guardian**, 11.29.11
Altered-image ratings tell you just how fake photos are in **New Scientist**, 11.28.11
Retouched or not? Tool spots photos' too-flawless features in **CBS News** 11.28.11
Digital Photo Retouching Quantified in New Metric in **PCWorld**, 11.29.11

REVIEWER

ACM SIGGRAPH (2012-2015), EuroGraphics (2014), Transactions on Information Forensics and Security (2011-2015), Optics Express (2013-2015), European Signal Processing Conference (2012), European Transactions on Telecommunications (2011), International Journal of Document Analysis and Recognition (2010)