

Geneviève Patterson

CONTACT INFORMATION

e-mail: gen@cs.brown.edu

github: genp
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CURRENT POSITIONS

Visual Supply Company (VSCO), Oakland, CA, USA

Head of Applied Research

Dec 2020- current

Architect of AI/ML/CV solutions for image and video editing and media recommendation. NFT marketplace technical lead.

Climate Change AI (CCAI), Montreal, Canada

Machine Learning + Climate Change Course Creator (Volunteer)

Jan 2021- current

PREVIOUS POSITIONS

TRASH Inc., Brooklyn, NY, USA

Co-founder and Chief Technology and Science Officer

July 2018 - Dec 2020

Launched AI-powered video editing engine to 100k registered users. Built and deployed independent musician portal for the creation of music videos using the TRASH iOS app. App of the Day March 2020.

Microsoft Research New England, Cambridge, MA, USA

Post-Doctoral Researcher

July 2016 – June 2018

EDUCATION

Brown University, Providence, RI, USA

PhD Computer Science

September 2010 – May 2016

- Advisor: Professor James Hays, Georgia Tech College of Computing
- Dissertation: Collective Intelligence: Crowd-Driven Image Understanding

The University of Tokyo, Hongo, Bunkyo-ku, Tokyo

Master of Electrical Engineering

October 2007 – September 2009

- Advisor: Associate Professor Takafumi Koseki, Dept. of Electrical Eng. and Information Systems
- Dissertation: Fundamental Modeling for Optimal Design of Transverse Flux Motors

The University of Arizona, Tucson, AZ, USA

BS Mathematics, BS Electrical Engineering (Hons)

August 2003 – May 2007

PUBLICATIONS

Gultchin, L., Patterson, G., Baym, N., Swinger, N., & Kalai, A. “Humor in Word Embeddings: Cockamamie Gobbledegook for Nincompoops.” *International Conference on Machine Learning*. May 2019.

Wu, J., B Zhou, D Peck, S Hsieh, V Dialani, L Mackey, G Patterson, “Deepminer: Discovering interpretable representations for mammogram classification and explanation,” *arXiv*. preprint arXiv:1805.12323.

Patterson, G., D. Greene, “How AI Sees Crime,” *IEEE Spectrum Magazine*.

Peck, D., G. Patterson, L. Mackey, V. Syrgkanis, “Visualizing the differences in visual primitives used by CNNs and radiologists,” *SPIE Medical Imaging*. Houston, TX, USA. February 2018.

Kaspar, A., G. Patterson, C. Kim, Y. Aksoy, M. A. Elgharib, W. Matusik. “Crowd-Guided Ensembles: How Can We Choreograph Crowd Workers for Video Segmentation?” *CHI 2018*. Montreal, Canada. April 2018.

Cashman, D., G. Patterson, A. Mosca, R. Chang, “RNNbow: Visualizing the Learning Process in Recurrent Neural Networks,” *VADL 2017: Workshop on Visual Analytics for Deep Learning, IEEE VIS 2017*. Phoenix, AZ, USA. October 2017. *Best Paper*.

Patterson, G., J. Hays, "COCO Attributes: Attributes for People, Animals, and Objects," *European Conference for Computer Vision (ECCV 2016)*. Amsterdam, The Netherlands. October 2016.

Lam, D., G. Patterson, "Kaizen: The Crowd Pathologist," *HCOMP 2016, GroupSight workshop*. Austin, TX USA. 2016.

Patterson, G., G. Van Horn, J. Hays, S. Belongie, P. Perona, "Tropel: Crowdsourcing detectors with minimal training," *Human Computation and Crowdsourcing (HCOMP 2015)*. San Diego, USA. November 2015. *Best Paper Award Finalist*.

Patterson, G., C. Xu, H. Su, J. Hays, "The SUN Attribute Database: Beyond Categories for Deeper Scene Understanding," *International Journal of Computer Vision*. May 2014, Volume 108, Issue 1-2, pp 59-81.

Patterson, G., G. Van Horn, S. Belongie, P. Perona, J. Hays, "Bootstrapping Fine Grained Classifiers: Active Learning with a Crowd in the Loop," *NIPS 2013, Crowd workshop*. Lake Tahoe, NV USA. Dec 5-10, 2013.

Patterson, G. T. Lin, J. Hays, "Using Humans to Build Mid-Level Features," *CVPR 2013, Scene Understanding Workshop*. Portland, OR USA. June 25-27, 2013.

Xiao, J., J. Hays, B. Russell, G. Patterson, K. Ehinger, A. Torralba, A. Oliva, "Basic level scene understanding: categories, attributes and structures," *Frontiers in Psychology*. August 2013.

Patterson, G., J. Hays, "SUN attribute database: Discovering, annotating, and recognizing scene attributes," *CVPR 2012*. Providence, RI USA. June 16-21, 2012.

Patterson, G., J. Hays, "Building a Taxonomy of Attributes for Fine-Grained Scene Understanding," *CVPR 2011, Fine Grained Computer Vision Workshop*. Colorado Springs, USA. June 20-25, 2011.

Patterson, G., T. Koseki, Y. Aoyama, K. Sako, "Simple Modeling and Prototype Experiments for a New High-Thrust, Low-Speed Permanent Magnet Disk Motor," *Proc. 12th International Conference on Electrical Machines and Systems*, Tokyo, Japan. Nov 2009.

Patterson, G., T. Koseki, "Fundamental Modeling for Optimal Design of Transverse Flux Motors," *The 2009 Annual Meeting of the IEE Japan*, Vol. 5, pp.17-18, Sapporo, Japan, March 2009.

Koseki, T., G. Patterson, T. Suzuki, "Visual State Feedback Digital Control of a Linear Synchronous Motor using Generic Video-Camera Signal," *Proc. 11th International Conference on Electrical Machines and Systems*, Wuhan, China. Oct 2008.

Lee K. S., Kim C. S., Kim R. K., Patterson G., Kolesik M., Moloney J. V., Peyghambarian N., "Dual-wavelength external cavity laser with a sampled grating formed in a silica PLC waveguide for terahertz beat signal generation," *Applied Physics B, Lasers and Optics*, Vol. 87 No. 2. April 2007.

BOOKS *Visual Attributes*, Editors: Rogerio Schmidt Ferris, Christoph Lampert, Devi Parikh, Chapter 12.

GRANTS Patterson, G., "Filmmaking for Everyone: Computational Video Editing." NSF SBIR Phase II. \$750,000. March 2020 - Dec 2020.

Patterson, G., "Filmmaking for Everyone: Computational Video Editing." NSF SBIR Phase I. \$250,000. January 2018 - October 2018.

TEACHING
EXPERIENCE Instructor, *Deep Learning for Computer Vision*, Tufts University, COMP-150DL, Spring 2017.
<http://comp150dl.github.io>.

Instructor, *Data-driven Computer Vision*, Brown University, CSCI 2951T, Spring 2016.
<http://cs.brown.edu/courses/csci2951-t/>.

PAST
EXPERIENCE **Clarifai**, New York, New York, USA

Early Employee

December 2013 – February 2014

Member of research and development team for new computer vision products.

IBM Corporation, Tucson, Arizona, USA

Software Developer

May 2005 – September 2007

Developed graphical user interface and network statistics graphing software for IBM enterprise class servers.

**HONOURS AND
AWARDS**

HCOMP 2015 Best Paper Award Finalist
Finalist - Facebook Graduate Research Fellowship 2013
National Defense Science and Engineering Graduate Fellowship 2010-2013
ICEMS 2009 Conference Award for Outstanding Paper and Technical Excellence
Japanese Ministry of Education Monbukagakusho Scholarship 2007 - 2009
University of Arizona President's Award for Excellence 2003-2007
University of Arizona Provost Scholarship 2003 - 2007

**COMMUNITY
ACTIVITIES**

GroupSight Second Workshop on Human Computation for Image and Video Analysis HCOMP 2017, workshop co-organizer
GroupSight Workshop on Human Computation for Image and Video Analysis HCOMP 2016, workshop co-organizer
COCO Challenge ICCV 2017, workshop co-organizer
MS COCO Challenge ECCV 2016, workshop co-organizer
MS COCO Challenge ICCV 2015, workshop co-organizer
IgniteCS Instructor Spring 2015 (Middle School introduction to programming course)
Ivy Labs Instructor - Computer Science History 2014, 2015 (Summer program for international HS students at Brown University)
Faculty Graduate Liaison, Department of Computer Science, Brown University Jan 2014-Jan 2015
LDV Vision Summit 2014, 2015 Challenge Coordinator
GirlsGetMath 2014 (Brown University High school summer program) Instructor
Summer@Brown 2012 (Brown University High school summer program) Guest Lecturer
Brown University Artemis Program 2012, 2014 Guest Lecturer
MIT Splash Program 2010 Instructor, Topic: Trains in Japan

REFERENCES

Available on request from:

- Karina Bernacki (Chief of Staff, VSCO, Co-founder TRASH Inc.)
- Hannah Donovan (Director of Product, VSCO, Co-founder TRASH Inc.)
- Professor James Hays (Georgia Tech)
- Professor Serge Belongie (Cornell Tech)
- Dr. Adam Kalai (MSR NE)
- Professor Pietro Perona (Caltech)
- Dr. Lester Mackey (MSR NE)