Geneviève Patterson

CONTACT INFORMATION

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github: genp
website: genp.github.io

POSITIONS HELD

Barderry Applied Research LLC, Nottingham, NH

Independent AI Researcher **July 2022 - current**

Research consultant and contractor. Clients include various AI startups and the NSF-funded Ocean Vision AI initiative (oceanvisionai.org) of the Monterey Bay Aquarium Research Institute (MBARI). Responsibilities at Ocean Vision AI include the design, implementation, and testing of a citizen science mobile game for exploring deep-sea video footage.

Climate Change AI (CCAI), Pittsburg, PA (remote)

Director of Projects and Partnerships **Oct 2021-Jan 2022**

Organizer and Process Chair for the CCAI Innovation Grants program ($2M total awards). Director of fundraising, sponsorship, and external partnerships.

Course Creator **Jan 2021- June 2023, volunteer**

Developed educational materials.

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

Head of Applied Research **Dec 2020- July 2022**

Architect of AI/ML/CV solutions for image and video editing and media recommendation. NFT marketplace technical lead (exhibitions.vsco.co).

TRASH Inc., Brooklyn, NY, USA

Co-founder and Chief Technology and Science Officer **July 2018 - Dec 2020**

Designed, implemented, and maintained an AI-powered video editing application with 100k monthly active users. Built and deployed independent musician portal for the creation of music videos using the TRASH iOS app. App of the Day March 2020. Acquired by Visual Supply Company (VSCO) Dec 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

Salas, J., Patterson, G. and F. de Barros Vidal, Editors. "Special Issue on Artificial Intelligence for Sustainability," *IEEE Transactions Latin America*. Nov 2022.

Mohanty, V. and G Patterson, "When Content Decides Where You Belong: Investigating Micro Communities on VSCO," *HCOMP 2021, Works-In-Progress*. Virtual. Nov 2021.

Wu, J., B Zhou, D Peck, S Hsieh, V Dialani, L Mackey, G Patterson, "Deepminer: Discovering

interpretable representations for mammogram classification and explanation," Extended Version of 2018 article. *Harvard Data Science Review*. 28 Oct 2021.

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. 31 May 2018.

Patterson, G., D. Greene, "How AI Sees Crime," *IEEE Spectrum Magazine*. 21 Nov 2018.

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. Oct 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. Nov 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, *Practical ML to Impact Climate Change*, NSERC Create LEADS Summer School 2021, 2022, and 2023.
https://ccai-course.github.io

Instructor, *Deep Learning for Computer Vision*, Tufts University, COMP-150DL, Spring 2017.
https://comp150dl.github.io

Instructor, *Data-driven Computer Vision*, Brown University, CSCI 2951T, Spring 2016.
https://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

ICCV 2023 PAMI Mark Everingham Prize, co-awardee for the Common Objects in Context Challenge and Dataset 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 Sping 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)
- Dr. Adam Kalai (MSR NE)
- Professor Serge Belongie (Cornell Tech)
- Professor Pietro Perona (Caltech)

Languages

English (native), Spanish (fluent)