

Colorado Reed

Electrical Engineering and Computer Science
University of California, Berkeley

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PROFESSIONAL EXPERIENCE

- 2022– **Visiting Researcher**
Meta AI Research
Leading an interdisciplinary team to determine snowpack in key mountainous basins using massive, multimodal earth observation data.
- 2020–2023 **Graduate Researcher (PhD)**
2013–2015 Computer Science
University of California, Berkeley
Research: Unsupervised and multimodal representation learning. Advised and managed 10+ masters and undergraduate students.
PhD Advisors: Kurt Keutzer and Trevor Darrell
- 2021–2021 **Research Intern**
Meta Reality Labs
Research project: Multiscale, multi-task representation learning.
Advisors: Bichen Wu and Peter Vajda
- 2014–2020 **Co-founder & CTO**
Fraction Inc.
San Francisco, CA
Managed team of 5+ engineers. Delivered 8 major products over 5 years. Raised \$3M+ in VC funding.
- 2012–2013 **Graduate Researcher (MPhil)**
University of Cambridge
Churchill Scholar (1 of 14 national scholars)
Research: efficient Bayesian non-parametric inference via submodular optimization
Advisor: Zoubin Ghahramani
- 2011 **Research Intern**
Machine Learning and Instrument Autonomy Group
NASA JPL, Pasadena, CA
Research projects on detecting anomalies in time-series astronomical data and missing value imputation; contributed to 3 publications and a best paper award.
- 2010 **Research Intern**
LIGO Group
California Institute of Technology
Research: ML methods for detection of gravitational waves

2008–2012 **Undergraduate Researcher**

Department of Physics

University of Iowa

Research: ML methods for detection of novel particles at LHC/Fermilab

EDUCATION

2020–2023 **PhD in Computer Science**, University of California, Berkeley, USA
2013–2015

2012–2013 **MPhil in Computer Science**, University of Cambridge, UK

2008–2012 **BSc in Applied Physics and Computer Science**, University of Iowa, USA

SELECT GRANTS, AWARDS, & HONORS

2022–2023 Led National Geospatial-Intelligence Agency STTR Funding for “Multi-Scale Representation Learning” Project (\$150k)

2022–2023 Berkeley AI Research Commons Grant for “[Fate of Snow](#)” - (\$120k)

2020–2021 Berkeley Deep Drive Grant for “[High-Level Context for Object Recognition](#)” - (\$70k)

2015–2020 Raised \$3M in venture funding for Fraction Inc.

2013–2016 NDSEG Fellowship

2012–2013 Winston Churchill Scholarship (14 national recipients; Cambridge tuition & stipend)

2012 NSF GRFP Fellowship (declined to accept NDSEG)

2012 University of Iowa Valedictorian

2010–2012 Barry M. Goldwater Scholarship

PUBLICATIONS

UNDER REVIEW

4. **Colorado Reed**, Ritwik Gupta, Shufan Li, Sarah Brockman, Christopher Funk, Brian Clipp, Christopher Funk, Salvatore Candido, Matt Uyttendaele, Trevor Darrell
Scale-MAE: A Scale-Aware Masked Autoencoder for Multiscale Geospatial Representation Learning. (2022). [arXiv:2212.14532](#).
3. Patrick Brown, Holt Hanley, Ankur Mahesh, **Colorado Reed**, S. J. Strenfel, A. K. Kochanski, C. C. Clements
Anthropogenic Influence on California’s Extreme Wildfire Risk. (2022).

2. Akash Gokul, Konstantinos Kallidromitis, Shufan Li, Yusuke Kato, Kazuki Kozuka, Trevor Darrell, **Colorado Reed**
Refine and Represent: Region-to-Object Representation Learning. (2022). [arXiv:2208.11821](https://arxiv.org/abs/2208.11821).
1. Kevin Miao, Suzanne Petryk, Akash Gokul, Raghav Singh, Kurt Keutzer, Joseph Gonzalez, Trevor Darrell, **Colorado Reed**
Prior Knowledge-Guided Attention in Self-Supervised Vision Transformers. (2022). [arXiv:2209.03745](https://arxiv.org/abs/2209.03745).

CONFERENCE PAPERS

11. Amir Bar, Xin Wang, Vadim Kantorov, **Colorado Reed**, Roei Herzig, Gal Chechik, Anna Rohrbach, Trevor Darrell, Amir Globerson
DETReg: Unsupervised Pretraining with Region Priors for Object Detection.
CVPR 2022.
10. **Colorado Reed***, Xiangyu Yue*, Ani Nrusimha, Sayna Ebrahimi, Vivek Vijaykumar, Richard Mao, Bo Li, Shanghang Zhang, Devin Guillory, Sean Metzger, Kurt Keutzer, Zhao
Self-Supervised Pretraining Improves Self-Supervised Pretraining
WACV 2022.
9. Bo Li, Yifei Shen, Yezhen Wang, Wenzhen Zhu, **Colorado Reed**, Jun Zhang, Dongsheng Li, Kurt Keutzer, Han Zhao
Invariant Information Bottleneck for Domain Generalization
AAAI 2022.
8. **Colorado Reed***, Tete Xiao*, Xiaolong Wang, Kurt Keutzer, Trevor Darrell
Region Similarity Representation Learning.
ICCV 2021.
7. **Colorado Reed**, Sean Metzger, Aravind Srinivas, Trevor Darrell, Kurt Keutzer.
SelfAugment: Automatic Augmentation Policies for Self-Supervised Learning.
CVPR 2021.
6. Amy Pavel, **Colorado Reed**, Bjoern Hartmann, Maneesh Agrawala
Video Digests: A Browsable, Skimmable Format for Informational Lecture Videos.
ACM 27th Symposium on User Interface Software and Technology, 2014.
5. **Colorado Reed**, Zoubin Ghahramani
Scaling the Indian Buffet Process via Submodular Maximization.
ICML 2013.
4. David R. Thompson, Walid A. Majid, **Colorado Reed**, Kiri L. Wagstaff
Semi-supervised eigenbasis novelty detection.
The ASA Data Science Journal, 6(3), 195-204. 2012.
3. **Colorado Reed**, David R. Thompson, Walid A. Majid, Kiri L. Wagstaff
Real time machine learning to find fast transient radio anomalies: A semi-supervised approach combining detection and RFI excision.
Proc. Int'l Astronomical Union Symp. Time Domain Astronomy. 2011.

2. David R. Thompson, Walid A. Majid, **Colorado Reed**, Kiri L. Wagstaff
Semi-supervised novelty detection with adaptive eigenbases, and application to radio transients. Conference on Intelligent Data Understanding, 2011. *Best Paper Award*
1. **Colorado Reed**, Todd Elvers, Padmini Srinivasan
What's trending? Mining topical trends in UGC systems with YouTube as a case study. 17th ACM SIGKDD, 2011.

WORKSHOPS

4. Malachy Moran, Kayla Woputz, Derrick Hee, Manuela Girotto, Paolo D'Odorico, Ritwik Gupta, Daniel Feldman, Puya Vahabi, Alberto Todeschini, **Colorado Reed**
Snowpack Estimation in Key Mountainous Water Basins from Openly-Available, Multimodal Data Sources
CVPR 2022 MultiEarth Workshop - Oral Presentation.
3. Dhileeban Kumaresan, Richard Wang, Ernesto A Martinez, Richard Cziva, Alberto Todeschini, **Colorado Reed**, Puya Vahabi
SunCast: Solar Irradiance Nowcasting from Geosynchronous Satellite Data.
NeurIPS 2021 Workshop on Tackling Climate Change with Machine Learning.
2. Poonam Parhar, Ryan Sawasaki, Alberto Todeschini, **Colorado Reed**, Hossein Vahabi, Nathan Nusaputra, Felipe Vergara HyperionSolarNet: Solar Panel Detection from Aerial Images
NeurIPS 2021 Workshop on Tackling Climate Change with Machine Learning.
1. Chitra Agastya, Sirak Ghebremusse, Ian Anderson, **Colorado Reed**, Hossein Vahabi, Alberto Todeschini
Self-supervised Contrastive Learning for Irrigation Detection in Satellite Imagery
ICML Workshop Tackling Climate Change with Machine Learning, 2021.

TECHNICAL REPORTS

3. Xiangyu Yue, Zangwei Zheng, **Colorado Reed**, Hari Prasanna Das, Kurt Keutzer, Alberto Sangiovanni Vincentelli Multi-source Few-shot Domain Adaptation [arXiv:2002.12169](https://arxiv.org/abs/2002.12169). 2021.
2. Sicheng Zhao, Bo Li, **Colorado Reed**, Pengfei Xu, Kurt Keutzer
Multi-Source Domain Adaptation In The Deep Learning Era: A Systematic Survey. [arXiv:2002.12169](https://arxiv.org/abs/2002.12169). 2020.
1. **Colorado Reed**
Submodular MAP Inference for Scalable Latent Feature Models.
Cambridge Master's Thesis. 2013.

OPEN-SOURCE PROJECTS

I actively contribute to open source projects and libraries, see my [Github](#) for more details.

- 2013– **Metacademy** – metacademy.org
A collaboratively constructed web-of-knowledge for machine learning concepts
2M+ visits
Co-creator and core developer.
- 2022– **MultiEarth** – <https://github.com/bair-climate-initiative/multiearth>
Download any remote sensing data from any provider using a single config.
Creator.

LEADERSHIP, TEACHING, AND ADVISING

- 2021– Founded and organize [Berkeley AI Research Climate Initiative](#)
- 2021– Organizer for Panasonic and Berkeley AI Research Computer Vision Research Collaboration
- 2020– System admin to help manage a large GPU cluster for 20+ graduate students
- 2015–2020 CTO of DotDashPay and Fraction Inc.
- 2014–2015 President of Computer Science Graduate Entrepreneurs at UC Berkeley

TEACHING

- 2022 DATASCI W210 - Data Science Capstone - Graduate Student Instructor
- 2021 DATASCI F210 - Data Science Capstone - Graduate Student Instructor
- 2012 Honors Teaching Practicum - Scientific Programming
- 2011 Honors Teaching Practicum - Scientific Programming

ADVISING

- 2022– Shufan Li (UCB undergrad; 2 submitted papers)
Araav Patel (UCB undergrad; Now at Citadel)
Raymond Mo (UCB undergrad; research in prep)
Jacob Yeung (UCB undergrad; research in prep)
Shashwath Senthil (high school student)
- 2021–2022 Kevin Miao (UCB Masters; 1 submitted paper; now at Apple)
Aakash Gokul (UCB Masters; 2 submitted papers; now at Salesforce)
Shufan Li (UCB undergrad; 2 submitted papers)
Araav Patel (UCB undergrad; Now at Citadel)
- 2020–2021 Vivek Vijaykumar (high school; 1 WACV 2022 paper; next: undergrad at GA Tech)
Richard Mao (UCB undergrad; 1 WACV 2022 paper; next: engineer at Meta)

REVIEWER

WACV (2022) – ECCV (2022) – NeurIPS (2020, 2021) – CVPR (2021, 2023) – ICML (2014) –
UIST (2014)

SKILLS

Languages:

- Python, JavaScript, Go, Bash (years of production-level development)
- C++, C, Ruby, Erlang (working knowledge)

Tools/Libraries:

- Pytorch, Tensorflow, OpenCV, Numpy, Ray, Matplotlib
- Docker, Singularity, Ansible, Chef
- L^AT_EX, Illustrator, Final Cut Pro, emacs, tmux

MISC

- Avid ultra-runner, completing events such as the [World's End 100k](#) and [Leadville 50 miler](#), as well as a many marathons and 50ks.
- I am a lifelong baker, and I occasionally host baking events and fundraisers.