Colorado Reed

Electrical Engineering and Computer Science
University of California, Berkeley

cjrd@cs.berkeley.edu
https://people.eecs.berkeley.edu/~cjrd

PROFESSIONAL EXPERIENCE

2022– **Visiting Researcher**
Meta AI Research
Leading 16-person interdisciplinary team project to determine snowpack in key mountainous basins using massive, multimodal earth observations.

2020–2023
2013–2015 **Graduate Researcher (PhD)**
Computer Science
University of California, Berkeley
Research: Unsupervised and multimodal computer vision to address key scientific problems related to climate change.
Advisors: Kurt Keutzer and Trevor Darrell

2021–2021 **Research Intern**
Meta Reality Labs
Research project: Designed and led multiscale representation learning in multi-task setting.
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
Summer internship that resulted in 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 Cambrdige, 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

3. Brown, P. T., H. Hanley, A. 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).

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).

PEER REVIEWED CONFERENCES

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.

PEER REVIEWED 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. 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. 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** – www.metacademy.org
       A collaboratively constructed web-of-knowledge for machine learning concepts
       2M+ visits
       Co-creator and core developer.

2022– **MetaEarth** – https://github.com/bair-climate-initiative/metaearth
       Download any remote sensing data from any provider using a single config.
       Creator.

LEADERSHIP AND ADVISING

2021–   Founded and organize Berkeley AI Research Climate Initiative

2021–   Organizer for Panasonic and Berkeley AI Research Computer Vision Research Collaboration

2020–   Student system admin that helped manage a 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

ADVISING AND MENTORING

2022–   Shufan Li (UCB undergrad; research in prep)
Araav Patel (UCB undergrad; research in prep)
Raymond Mo (UCB undergrad; research in prep)
Jacob Yeung (UCB undergrad; research in prep)
Shashwath Senthil (high school; research in prep)

2021–2022   Kevin Miao (UCB Masters; research in prep)
Aakash Gokul (UCB Masters; research in prep)
Shufan Li (UCB undergrad; research in prep)
Araav Patel (UCB undergrad; research in prep)

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) – 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
- LaTeX, 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 – occasionally hosting events and fundraisers.