

Bram Wallace
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[Google Scholar](#)

Education	PhD in Applied Mathematics (Aug 2017 - Dec 2021: Cornell University) Thesis: <i>Approaches to Maximize the Benefits of Pretraining in Computer Vision</i> Research Focus: Computer Vision, Self-Supervised Learning, Transfer Learning B.S. in Mathematical Sciences (2015: University of California, Santa Barbara)
Selected Publications	Wallace , Gokul, & Naik: <i>EDICT: Exact Diffusion Inversion via Coupled Transformations</i> . Arxiv 2022 Wallace* , Wu* & Hariharan: <i>Can We Characterize Tasks Without Labels or Features?</i> CVPR 2021 Wallace & Hariharan: <i>Extending and Analyzing Self-Supervised Learning Across Domains</i> . ECCV 2020 Reviewer: AAAI, Neurips, ICML, CVPR
Select Work Experience	Research Scientist (Salesforce Research) <i>Jan 2022 - Present</i> Created novel image editing and generative algorithms to dramatically expand the capabilities of pretrained diffusion models. Developed vision-language pretraining library for large-scale training on TPUs. Assisted with Language Modeling for Protein Generation. Research Intern (Salesforce Research) <i>May 2021 - August 2021</i> Designed methods for self-supervised ensembling of pretrained visual recognition networks with applications to transfer learning. Financial Engineering Intern (Bloomberg LP) <i>May 2018 - August 2018</i> Developed unsupervised anomaly detection models for foreign currency exchange volatilities. This work was incorporated in Bloomberg production code. Teaching Assistant (Cornell University) <i>August 2017 - May 2019</i> Head TA of Introduction to Data Science. Awarded <i>Distinguished Active Learning Teaching Assistant Fellowship</i> Data Science and Software Engineering Intern (Vium) <i>April 2016 - March 2017</i> Worked on machine learning and software engineering tasks, with a focus on computer vision. Sports Analytics Writer (The Stats Zone) <i>April 2016 - August 2016</i> Wrote sports analytics articles for online publication. Junior Researcher (UC Santa Barbara) <i>June 2015 - September 2015</i> Designed biophysical Monte Carlo simulations of FRET experiments. Published in PLOS One.
Software Skills	<ul style="list-style-type: none">• Python: Pytorch(/XLA), Torchvision• TPU (Tensor Process Unit) large-scale neural network training• GCloud/Kubernetes• Linux/Bash
Research Summary	Discovering hidden capabilities and properties of pretrained vision neural networks and using these insights to train even better neural networks. Currently working in editing and generation.
Personal Interests	Trail running, backpacking, strategy games, river tubing, health/nutrition, reading, maps