# Dave Epstein

dave.epstein@berkeley.edu

## Education

**University of California, Berkeley**, *Ph.D. in Computer Science* — Berkeley, CA
Advisor: Prof. Alexei Efros — **Aug 2020 -**

**Columbia University**, *B.S. in Computer Science* — New York, NY
Advisor: Prof. Carl Vondrick, GPA: 4.11, summa cum laude — **Sep 2016 - May 2020**

## Research Interests

I work on teaching machines a high-level creative understanding of the dynamic real world, which I believe requires learning from video without manual supervision. I am also interested in language, machine learning, computational photography, and interaction as they relate to this.

## Publications

D. Surís, **D. Epstein**, C. Vondrick. "Globetrotter: Unsupervised Multilingual Translation from Visual Alignment." Arxiv. In submission.

**D. Epstein**, C. Vondrick. "Video Representations of Goals Emerge from Watching Failure." Arxiv. In submission.

D. Surís*, **D. Epstein***, H. Ji, S.F. Chang, C. Vondrick. "Learning to Learn Words from Visual Scenes." ECCV 2020.

**D. Epstein**, B. Chen, C. Vondrick. "Oops! Predicting Unintentional Action in Video." CVPR 2020.

**D. Epstein***, Y. Shi*, E. Wu, C. Vondrick. "What's missing from self-supervised representation learning?"

D. She, K. Pei, **D. Epstein**, J. Yang, B. Ray, S. Jana. "NEUZZ: efficient fuzzing with neural program learning." S&P Oakland 2019.

## Experience

**Google Research**, advised by Dr. Chen Sun, Prof. Jiajun Wu, and Dr. Cordelia Schmid — **May 2020 - Dec 2020**
Research Intern — Mountain View, CA
Worked on self-supervised learning of temporal dynamics from narrated instructional video.

**Computer Vision Lab at Columbia University**, advised by Prof. Carl Vondrick — **Sep 2018 - May 2020**
Worked on various problems in self-supervised learning: image and video representation learning, understanding and correcting unintentional actions in video, learning language from in-the-wild video.

**Intel**, Performance Projection Group — **May 2018 - Aug 2018**
Software Architecture Intern — Santa Clara, CA
Modeled performance of emerging machine learning workloads on competitor hardware, analyzed CPU optimization of recurrent neural networks.

**Security Lab at Columbia University**, advised by Prof. Suman Jana — **Oct 2017 - May 2018**
Analyzed adversarially robust networks; used neural networks to automatically find bugs in software.

## Awards and Honors

**Theodore R. Bashkow Award**, Columbia University Department of Computer Science **May 2020**

**Academic Excellence Award**, Columbia University Department of Computer Science **May 2020**

**CRA Outstanding Undergraduate Researcher**, Honorable Mention **Dec 2019**

**Junior Tau Beta Pi** **Mar 2019**

## Teaching Experience

**Columbia University Computer Science** **Sep 2017 - Aug 2019**
Head Teaching Assistant New York, NY

**Data Structures and Algorithms**, Fall 2017, Spring 2018, Fall 2018, Spring 2019, Summer 2019
Managed team of TAs, helped write homeworks and exams, held recitations and lectures.

**Advanced Computer Vision**, Spring 2019
Helped design course, evaluated presentations, mentored groups in research projects.

## Professional Service

**Reviewer**, CVPR 2020, NeurIPS 2020

## Presentations

**Invited talk**, UC Berkeley, Google **Jul 2020**
"Toward bridging the child-machine gap."

**Short presentation**, Minds vs. Machines Workshop at CVPR 2020 **Jun 2020**
"Oops! Predicting unintentional action in video."

**Oral presentation**, Minds vs. Machines Workshop at CVPR 2020 **Jun 2020**
"Learning to learn words from visual scenes."

**Invited talk**, Columbia High School Academic Program for Engineers **Nov 2018**
"AI safety and security in machine learning."

**Poster presentation**, MIT Undergraduate Research Technology Conference **Oct 2018**
"Automatically detecting software vulnerabilities with machine learning."

## Other Interests

Industrial and interior design, Romance languages, cooking, cocktail mixing, ice cream making, magical realism.