

# Suzanne Petryk

suzie\_petryk@apple.com

suziepetryk.com

**Overview:** I am a machine learning researcher at Apple, working on multimodal AI. In May 2024, I completed my Ph.D. student in AI at UC Berkeley, working on improving the reliability of multimodal models.

## EDUCATION

---

**University of California, Berkeley**, Berkeley, CA **August 2019 - May 2024**

Ph.D. in AI - Multimodal Vision + Language

**GPA:** 4.0. Co-advised by Prof. Trevor Darrell and Prof. Joseph E. Gonzalez at BAIR.

**Thesis Title:** *Reliable Multimodal Models*.

**Cornell University**, College of Engineering, Ithaca, NY **August 2015 - May 2019**

*Bachelor of Science, Computer Science*

**GPA:** 3.84 (Magna Cum Laude); Dean's List All Semesters; Tau Beta Pi Member (Engineering Honor Society)

Selection of coursework: Computer Vision (grad. course), ML Systems (grad. course), ML for Data Science, Foundations of AI, Algorithms, Discrete Structures (CS-focused math & probability), Quantum Mechanics

## RESEARCH EXPERIENCE

---

**Univ. of California, Berkeley**, Graduate Student Researcher **August 2019 - Present**

*Advisors: Prof. Trevor Darrell, Prof. Joseph Gonzalez*

*Expected graduation May 2024*

- Researching the factuality/honesty of vision + language models. *E.g.:* How do we evaluate, explain, and reduce hallucinations in generated text? How do we measure and use uncertainty? How do we mitigate bias?

**Meta (FAIR Labs)**, Visiting Researcher **January 2022 - January 2024**

*Managers: Dr. Kate Saenko, Dr. Marcus Rohrbach*

- Paper accepted at WACV 2024 (Poster) and ICCV 2023 Workshop (Oral) on reducing image caption hallucinations.
- Paper accepted at ECCV 2022 (Poster) on reliable visual question answering.

**Univ. of California, Berkeley**, Summer Undergraduate Program of Engineering Research **June - August 2017**

*Advisor: Prof. Alexandre Bayen*

- Collaborated on paper on use of loop detector data to estimate arterial traffic flow fundamental diagram.
- Presented research as plenary speaker for Ivy League Undergraduate Research Symposium in November 2017.

**Univ. of Utah**, Materials Research Science & Engineering Centers REU Program **June - August 2016**

*Advisor: Prof. Taylor Sparks*

- Collaborated on paper on effect of topological insulator crystal growth conditions on material properties.
- Won REU's poster competition and presented at 2017 National Council on Undergraduate Research.

## SELECTED PUBLICATIONS

---

**Suzanne Petryk\***, David M. Chan\*, Anish Kachinthaya, Haodi Zou, John Canny, Joseph E. Gonzalez, Trevor Darrell  
ALOHa: A New Measure for Hallucination in Captioning Models.

NAACL 2024. <https://arxiv.org/pdf/2404.02904>

- We use an LLM to extract objects in candidate and reference captions, and measure their semantic similarity to find possible hallucinations.

**Suzanne Petryk**, Spencer Whitehead, Joseph E. Gonzalez, Trevor Darrell, Anna Rohrbach, Marcus Rohrbach. Simple Token-Level Confidence Improves Caption Correctness.

WACV 2024, ICCV 2023 Workshop (Oral). [arxiv.org/pdf/2305.07021.pdf](https://arxiv.org/pdf/2305.07021.pdf)

- We learn token-level confidences to achieve state-of-the-art object hallucination rates in image captioning.

Spencer Whitehead\*, **Suzanne Petryk\***, Vedaad Shakib, Joseph Gonzalez, Trevor Darrell, Anna Rohrbach, Marcus Rohrbach. Reliable Visual Question Answering: Abstain Rather Than Answer Incorrectly.

ECCV 2022. [arxiv.org/pdf/2204.13631.pdf](https://arxiv.org/pdf/2204.13631.pdf)

- We learned an uncertainty estimator to abstain on difficult VQA inputs.

**Suzanne Petryk\***, Lisa Dunlap\*, Keyan Nasseri, Joseph E. Gonzalez, Trevor Darrell, Anna Rohrbach. On Guiding Visual Attention with Language Specification.

CVPR 2022. [arxiv.org/pdf/2202.08926.pdf](https://arxiv.org/pdf/2202.08926.pdf)

- We used CLIP to guide the attention of a CNN classifier away from biases.

## EMPLOYMENT EXPERIENCE

---

**Apple**, Machine Learning Researcher **September 2024 - Present**  
Working on applied multimodal AI.

**Meta (FAIR Labs)**, Visiting Researcher **January 2022 - January 2024**  
*See entry above under RESEARCH EXPERIENCE.*

**SafelyYou**, AI Intern (Startup using AI to improve safety at senior living communities) **July 2021 - May 2022**

- Implemented object detection models with PyTorch for automated fall detection.
- Implemented domain adaptation framework for adapting to new facilities.

**Citrine Informatics**, Data Science Intern (Startup using AI to accelerate materials R&D) **June - August 2018**

- Built framework in Scala to accelerate training data collection for ML model on materials datasets.
- Built and thoroughly documented ML pipeline from data collection to model testing. Used pipeline to predict probability of success for separate ML process as a form of meta-learning.

## TEACHING

---

**Computer Vision Graduate Student Instructor**, Univ. of California, Berkeley **January 2024 - Present**  
*Graduate course (CS 280)*

**Computer Vision Teaching Assistant**, Cornell University **January - May 2019**  
*Undergraduate course (CS 4670)*

- Developed new machine learning project for students from scratch.

**Operating Systems Teaching Assistant**, Cornell University **August 2018 - December 2018**  
*Undergraduate course (CS 4410)*

- Contributed the most answers to student questions on online Q&A forum for course out of 21 undergraduate TAs.

## OUTREACH

---

**AI4ALL**, Instructor **August 2019, August 2020, August 2021**

- Taught high school students in week-long summer programs targeting underrepresented students in computer science
- Developed projects around reinforcement learning (2019) and GANs (2020, 2021)

**Berkeley AI Research Undergraduate Mentoring Program**, Mentor **August 2019 - August 2020**

**Girls Who Code**, Volunteer Teacher

**September 2016 - May 2019**

- On a weekly basis, taught a class of 20 high school students fundamental computer science concepts with JavaScript
- Assisted individual students with course projects, including basic web design and Arduino programming

## SPECIALIZED SKILLS

---

**Programming:** Python, Git, Emacs, Scala, C, JavaScript, Matlab

**Maching Learning Frameworks:** PyTorch, Tensorflow

**Languages:** Polish (conversational), Spanish (intermediate), Latin (basic)

## MISCELLANEOUS

---

- Ran track & cross-country for about 8 years, including 2 years on the Varsity Division-I team at Cornell University. Competed at the New York State and National championships.
- I enjoy climbing, hiking, reading, skiing, and basic woodworking.