ZACHARY BERGER

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EDUCATION

2018 – 2022 **University of California, Los Angeles (UCLA)**

4.00 GPA | B.S. in computer science, mathematics concentration. Summa Cum Laude.

Courses – Deep Learning, Classical ML, Neural Signal Processing, ML in Bioinformatics, Real Analysis, Linear Algebra, Discrete Structures, Probability, Algorithms & Complexity, Networks, Operating Systems, Quantum Computing.

WORK & RESEARCH EXPERIENCE

2022 – **Google**, Mountain View – *Software Engineer*

- Adapted serving infrastructure for generative AI models, supporting multiple client launches (e.g., Bard LLM, MusicLM text to music, Imagen/Parti text to image).
- Deployed state-of-the-art logo recognition model at 50,000 queries per second. Saved 8 million dollars of TPUs by migrating traffic to more efficient architecture.
- Designed and implemented statistics to continuously evaluate production object detection, embedding, and classification models.
- Implemented system for developers to test API calls to ML models.

2021-2022 **Prof. Amit Sahai**, Los Angeles – *Research Assistant & Lecturer*

- Devised stochastic simulation to study evolution of despair in humans[2], providing evidence that despair can detriment the individual while benefiting a population.
- Developed and taught an undergraduate class for 20 non-STEM majors, *Demystifying CS*, and received an overall review of 4.84/5.

2020-2022 **UCLA Vision Lab**, Los Angeles – *Research Assistant*

- Published algorithm in CVPR to optimize adversarial attacks against stereo matching networks[1] used in autonomous vehicles.
- Showed architectural choices that improve network-robustness for vision tasks.

2021 **Amazon**, Seattle – *Software Engineering Intern*

- Designed and built a native AWS application to supply up-to-date login information for multi-factor authentication challenges, obtaining detailed AWS knowledge.

2021 **Tesla**, San Francisco – *Data Science Intern*

- Wrote and scaled a data quality detection algorithm using Scala to operate on Tesla's multi-petabyte vehicle dataset. The algorithm is used to preprocess data, promoting robustness in Tesla's ML pipeline.
- Built data pipeline using Airflow to periodically deploy algorithm on a distributed Spark cluster, then update results/visualizations in Superset.

PAPERS

[1] **Z. Berger**, P. Agrawal, T. Liu, S. Soatto, A. Wong, "Stereoscopic Universal Perturbations across Different Architectures and Datasets." ***CVPR***, 2022.

[2] **Z. Berger**, A. Sahai, "Simulating the Evolution of Human Despair." *In preparation*.

TECHNICAL SKILLS

Python (TensorFlow, PyTorch, NumPy, Pandas, Scikit-learn) | C/C++ | Java | Golang | Scala | SQL | Latex
Git | Unix/Linux | AWS | Spark | Airflow | Superset | GoCD | CI/CD | Deploying ML @ Scale | Mathematics