Evan W. Becker

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EDUCATION:

University of California, Los Angeles (UCLA) — Expected 2025
Ph.D. in Computer Science; GPA: 3.95/4.00

University of Pittsburgh Swanson School of Engineering — 2016-2020
Bachelor of Science in Electrical Engineering

RESEARCH EXPERIENCE:

Graduate Researcher: — October 2020-Present
Advisors- Alyson K. Fletcher, UCLA & Sundeep Rangan, NYU
- Analyzing behavior of deep networks in high-dimensional regimes using the neural tangent kernel
- Created custom GAN architectures in Pytorch to characterize stability and convergence rates

Amazon Applied Science Intern: — June-September 2022
Mentor- Sherief Reda, Brown University
- Designed a neural network to model customer substitution behavior in Amazon's core marketplace

Undergraduate Research Assistant: — 2018-2020
Advisor- Natasa Miskov-Zivanov, University of Pittsburgh
- Developed and implemented algorithms (C++ and Python) for assembling graph-based causal networks to efficiently simulate dynamics of biological and geopolitical systems

International Genetically Engineered Machine Competition: — 2018-2019
Advisors- Alex Dieters & Natasa Miskov-Zivanov, University of Pittsburgh
- Utilized statistical filtering techniques (EKF, particle filter) to estimate biological rate constants

PAPERS:

*equal contributions

(2023) **Becker**, Zadouri, Gao, Mirzasoleiman. "High Probability Bounds for Stochastic Continuous Submodular Maximization". *AIStats*
(2022) **Becker,** Pandit, Rangan, Fletcher. "Instability and Local Minima in GAN Training with Kernel Discriminators". *NeurIPS*
(2022) Hung*, **Becker***, Zadouri*, Grover. "Conditioned Spatial Downscaling of Climate Variables". *AI for Science Workshop @ NeurIPS*
(2019) **Becker,** Bocan, Miskov-Zivanov. "Nested Event Representation for Automated Assembly of Cell Signaling Network Models". *Intl. Workshop on Static Analysis in Systems Biology (LNCS)*
(2018) Miller, Burner, **Becker,** Misra, Saba, Berti. "A Novel UAV for Interaction with Moving Targets in an Indoor Environment". *IARC Symposium on Indoor Flight Issues*. Link (Not peer-reviewed; Awarded Best Technical Paper)

PRESENTATIONS:

Nested Event Representation for Cell Signaling Networks: — October 2019
- *Presentation: 10th International Workshop on Static Analysis in Systems Biology. Porto, Portugal*

Chronological Event Recording of Stimuli using CRISPR Base Editing: — October 2018
- *Poster: 2018 Biomedical Engineering Society Annual Meeting. Atlanta, GA*

HONORS/AWARDS:

NSF Graduate Research Fellowship -Honorable Mention — 2020
University of Pittsburgh Stamps Scholarship ($150,000+ in total): — 2016- 2020
Swanson School of Engineering Summer Research Fellowship: — 2019- 2020

TEACHING ASSISTANTSHIP:

Computer Science, UCLA

- Formal Languages and Automata Theory (CS 181) — Fall 2021, Fall 2022
- Introduction to Computer Science I (CS 31) — Winter 2021, Spring 2022

ECE, University of Pittsburgh

- Digital Circuits and Systems (ECE 0201) — Fall 2019, Fall 2020
- Embedded Processors and Interfacing (ECE 0202) — Spring 2020, Summer 2020

PROJECTS:

L2HMC Sampler (*UCLA):* 2021

- Evaluated robustness of the L2HMC sampler, a Hamiltonian Monte Carlo sampler with Neural Network informed dynamics (Levy et. al 2018) using TensorFlow
- Discovered 90% reduction in expected sample size after small rotations of target distribution

Senior Design Capstone (*ECE, University of Pittsburgh*): 2018

- Designed a wearable device to transcribe gestures from deaf-blind alphabet using time series data from IMU and electric field sensors (2nd place at Swanson School of Engineering Design Exposition)

Autonomous Drone Team (*University of Pittsburgh)*: 2016- 2018

- Utilized C++ and Python in a ROS framework to design and tune motion control system of an autonomous drone for the International Aerial Robotics Competition (1st place in US venue)

PROFESSIONAL SERVICE:

Reviewer (ICML, AISTATS) 2022

Pittsburgh Data Jam Mentor (*Pittsburgh Dataworks)*: 2016- 2020

TECHNICAL SKILLS:

Programming Languages: Python, SQL, MATLAB, Java, C++, C, ARM Assembly
Machine Learning and Optimization: Pytorch, TensorFlow, Scikit-Learn, OpenCV, CVXPY
Software/OS: Windows, Linux, ROS, Git, Solidworks, Eagle

GRADUATE WORKSHOPS AND SUMMER SCHOOLS:

- Deep Learning Theory, *Center for Statistics and ML, Princeton University* 2021
- Probabilistic AI, *Open AI Lab, Norwegian University of Science and Technology* 2021

GRADUATE COURSEWORK:

Machine Learning: Algorithmic ML, Large-Scale ML, Neural Networks and Deep Learning, Deep Generative Models, Automated Reasoning Theory
Statistics: Applied Probability, High-Dimensional Statistics, Hierarchical Linear Models, Graphical Models, Advanced Bayesian Computing
ECE: Convex Optimization, Optimization Methods for Large-Scale Systems, Information Theory, Linear System Theory, Nonlinear Dynamic Systems, Image Processing

REFERENCES:

Alyson K. Fletcher	Assistant Professor of Statistics, Computer Science, & Electrical Engineering *University of California, Los Angeles*
Sundeep Rangan	Professor of Electrical & Computer Engineering *New York University*
Natasa Miskov-Zivanov	Assistant Professor of Electrical & Computer Engineering, Bioengineering, Computational & Systems Biology *University of Pittsburgh*