

# Elizabeth Dietrich

University of California, Berkeley

✉ eadietri@berkeley.edu | 🏠 elizabethdietrich.github.io

## Position

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**University of California, Berkeley**

GRADUATE STUDENT RESEARCHER

Electrical Engineering and Computer Sciences

Berkeley, USA

08/2023 – Today

## Interests

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### Methods

reachability analysis · formal methods · data-driven control

### Topics

autonomous systems · control theory · statistical learning

## Education

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**University of California, Berkeley**

PHD IN ELECTRICAL ENGINEERING AND COMPUTER SCIENCES

Advisor: Murat Arcak

Berkeley, CA, USA

08/2023 – Today

**Indiana University, Bloomington**

B.S. IN COMPUTER SCIENCE, MINOR IN MATHEMATICS

Thesis: A beginner's guide to Iris, Coq and separation logic, Advisor: Dennis Shasha

Bloomington, IN, USA

08/2017 – 05/2021

## Visits

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**Norwegian University of Science and Technology (NTNU)**

VISITING RESEARCHER

MC Lab (Asgeir J Sørensen and Roger Skjetne)

Trondheim, Norway

06/2025 – Today

**Norwegian University of Science and Technology (NTNU)**

VISITING RESEARCHER

MC Lab (Asgeir J Sørensen)

Trondheim, Norway

05/2024 – 07/2024

## Publications

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\* first author(s)

### PREPRINTS

**Elizabeth Dietrich\***, Hanna Krasowski\*, and Murat Arcak. *Probably Approximately Correct (PAC) Guarantees for Data-Driven Reachability Analysis: A Theoretical and Empirical Comparison*. 2026

Varun Madabushi\*, **Elizabeth Dietrich\***, Hanna Krasowski, and Maegan Tucker. *Finite-Step Invariant Sets for Hybrid Systems with Probabilistic Guarantees*. 2026

**Elizabeth Dietrich\***, Hanna Krasowski, Vegard Flovik, and Murat Arcak. *Importance Sampling for Statistical Certification of Viable Initial Sets*. 2026

Hanna Krasowski\*, **Elizabeth Dietrich\***, Emir Cem Gezer, Roger Skjetne, Asgeir Johan Sørensen, and Murat Arcak. *pacSTL: PAC-Bounded Signal Temporal Logic from Data-Driven Reachability Analysis*. 2026

### CONFERENCE PAPERS

**Elizabeth Dietrich\***, Rosalyn Devonport, Stephen Tu, and Murat Arcak. "Data-Driven Reachability with Scenario Optimization and the Holdout Method". In: *2025 IEEE 64th Conference on Decision and Control (CDC)*. 2025, pp. 3925–3931

**Elizabeth Dietrich\***, Emir Cem Gezer\*, Bingzhuo Zhong, Murat Arcak, Majid Zamani, Roger Skjetne, and Asgeir Johan Sørensen. “Symbolic Control for Autonomous Docking of Marine Surface Vessels”. In: *2025 IEEE 64th Conference on Decision and Control (CDC)*. 2025, pp. 3021–3026

**Elizabeth Dietrich\***, Alex Devonport, and Murat Arcak. “Nonconvex scenario optimization for data-driven reachability”. In: *Proceedings of the 6th Annual Learning for Dynamics Control Conference*. Vol. 242. Proceedings of Machine Learning Research. PMLR, 15–17 Jul 2024, pp. 514–527

## Invited Talks

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- 2025** NSF Frontier Review, UC Berkeley · SFI Autoship Review, NTNU · Marine Cybernetics Seminar, NTNU · ANSR Seminar, UC Berkeley, online
- 2022** Informatics, Computing, and Engineering Seminar, IUB · Intelligent Systems Symposium, Johns Hopkins University APL

## Mentoring

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### STUDENT PROJECTS

- 2025- **Athul Krishnan & Chloe Yejin Lynn** UCB  
NSF IRES Project on Autonomous Marine Operations for the Arctic

## Professional Experience

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- 08/2021 – 07/2023 **Associate Staff: Research Scientist** · Johns Hopkins University Applied Physics Laboratory  
05/2020 – 08/2021 **Undergraduate Research Assistant** · New York University, Courant Institute  
05/2019 – 08/2019 **Software Engineer Intern** · Amazon

## Teaching Experience

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- Spring 2025 **Optimization of Engineering Systems (MAS-E 238C)**, Graduate Teaching Assistant (online)  
Fall 2024 **Analysis and Control of Nonlinear Systems (MAS-E 250A)**, Graduate Teaching Assistant (online)  
Spring 2022 **MATLAB II**, STEM Academy Instructor JHUAPL  
Fall 2018 & 2019 **Introduction to Computer Science (CSCI-C211)**, Undergraduate Teaching Assistant

## Service to the Profession

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### COMMITTEES & ORGANIZATIONS

- 2024 - **EECS Equal Access to Application Assistance (EEAAA)**, Assist underrepresented prospective PhD students on their graduate school applications to help equalize access to guidance on the application process. UCB
- 2026 **EECS PhD Visit Days Coordinator**, Coordinate visit days for close to 300 students admitted to the EECS PhD program. UCB
- 02/2026 **Application reviewer for Berkeley EECS MEng program**, Read and evaluate applications for admission to Berkeley’s EECS professional master programs. UCB
- 2025 **Graduate Student Steering Committee (SCALE Lab)**, Assist in planning of activities for safety, autonomy, controls, learning, and embedded systems (SCALE) lab group. UCB
- 03/2025 **EECS PhD CIR & CPSDA Visit Days**, Organization of activities for prospective PhD students in controls, automation, learning, and embedded systems. UCB

### PEER REVIEW

**Conferences (reviewed 4 submissions):** Conference on Decision and Control (CDC)

**Journals (reviewed 3 submissions):** IEEE Control System Letters (L-CSS)

## Awards, Fellowships, & Grants

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- 2026 **EECS Departmental Chair's Graduate Award**, University of California, Berkeley
- 2025 **Fernström Fellowship**, University of California, Berkeley
- 2023 **NSF Graduate Research Fellowship (GRFP)**, National Science Foundation
- 2021 **Kate Hevner Mueller Senior Award**, Indiana University, Bloomington
- 2020 **Goldwater Scholar**, Barry Goldwater Scholarship and Excellence in Education Foundation