Eric Vin

Computer Science PhD Student at UCSC

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Education

PhD, University of California Santa Cruz   *Santa Cruz, CA*

GPA:4.0/4.0   *September 2021 - Present*

- PhD in Computer Science
- Advised by Daniel Fremont

BS/BA, University of California Santa Cruz   *Santa Cruz, CA*

GPA: 3.75/4.0   *September 2017 - June 2021*

- Bachelor of Science in Computer Science with Highest Honors
- Bachelor of Arts in Computational Mathematics with Highest Honors
- University Honors, Cum Laude

Experience

Graduate Student Researcher   *Santa Cruz, CA*

University of California, Santa Cruz   *June 2021 - Present*

- Advised by Daniel Fremont

Teaching Assistant   *Santa Cruz, CA*

University of California, Santa Cruz   *December 2022 - March 2022*

- Winter 2022: CSE 103 (Computational Models)

Undergraduate Researcher in Language, Systems and Data Lab   *Santa Cruz, CA*

University of California, Santa Cruz   *February 2021 - June 2021*

- Worked under Daniel Fremont at UCSC to complete a senior thesis extending the original Control Improvisation concept to allow for labelling of improvisations.
- Formalized new problem definitions for Labelled Control Improvisation, an extension of the original Control Improvisation problem. Provided efficient algorithms and rigorous guarantees for these new problems.

Undergraduate Researcher in i-NRG Lab   *Santa Cruz, CA*

University of California, Santa Cruz   *February 2018 - July 2021*

- Worked on the PIMAP project under Katia Obraczka and Sam Mansfield at UCSC.
- PIMAP is "a system architecture that presents a standard to collect medical device data, store it and analyze it in the Cloud, in a secure and private manner".
- Implemented PIMAP framework for Sentinel and SmartDerm bandages for collecting, analysing, and visualizing data to detect and prevent pressure ulcers.

Tutor and Reader   *Santa Cruz, CA*

University of California, Santa Cruz   *January 2020 - June 2021*

- Spring 2021: Reader for CSE 130 (Operating Systems)
- Spring 2020: Reader for CSE 120 (Computer Architecture)
- Winter 2020: Tutor for CSE 110A (Compilers)

Awards and Achievements

Dean's Award, Chancellor's Award *University of California, Santa Cruz*
June 2022

- "Dean's Awards are granted to fifty of the most excellent undergraduate research theses or projects ... Fifteen Chancellor's Awards are granted to the most outstanding top three theses or projects from each division's Deans' Awardees."
- Received Dean's Award and Chancellor's Award for my Bachelor's Thesis, "Labelled Control Improvisation".

Patrick Mantey Undergraduate Leadership Award *University of California, Santa Cruz*
May 2020

- "The Patrick Mantey Undergraduate Leadership Award recognizes a Baskin School of Engineering undergraduate student who demonstrates outstanding leadership abilities and exhibits academic merit. Students, whose contributions represent the very best attributes and accomplishments in the community, are nominated by faculty (students do not apply) ... BSOE faculty nominate students for this award."
- Nominated by Katia Obraczka for my work on the PIMAP project.

NSF Research Experience for Undergraduates Fellowship
June-July 2019

- Received a REU Summer Fellowship and Stipend from the National Science Foundation for my work on the PIMAP project at UCSC under Katia Obraczka and Sam Mansfield.

Publications and Theses

3D Environment Modeling for Falsification and Beyond with Scenic 3.0 *CAV 2023*

ERIC VIN, SHUN KASHIWA, MATTHEW RHEA, DANIEL J. FREMONT, EDWARD KIM, TOMMASO DREOSSI, SHROMONA GHOSH, XIANGYU YUE, ALBERTO L. SANGIOVANNI-VINCENTELLI, AND SANJIT A. SESHIA *Tool Paper*

Tackling Simulation Inconsistencies in the Robot Design Process by Selective Empirical Evaluation *DESTION 2023*

ANWESHA CHATTORAJ, ERIC VIN, YUSUKE TANAKA, JILLIAN NALDRIEN PANTIG, DANIEL J. FREMONT, ANKUR MEHTA *Workshop Paper*

Symbiotic CPS Design-Space Exploration through Iterated Optimization *DESTION 2023*

SHENG-JUNG YU, INIGO INCER, VALMIK PRABHU, ANWESHA CHATTORAJ, ERIC VIN, DANIEL J. FREMONT, ANKUR MEHTA, ALBERTO SANGIOVANNI-VINCENTELLI, SHANKAR SASTRY, SANJIT SESHIA *Workshop Paper*

Randomized Synthesis for Diversity and Cost Constraints with Control Improvisation *CAV 2022*

{ANDREAS GITTIS, ERIC VIN}*, DANIEL J. FREMONT *Conference Paper*

* The two first authors contributed equally to the paper.

A Novel IoT System For Patient-Centric Pressure Ulcer Prevention Using Sensor Embedded Dressings *PerCom 2022*

SACHIN RANGARAJAN, YOUNG LEE, VINITH JOHNSON, KAELAN SCHORGER, HANMIN LEE, DUNG NGUYEN, MOHAMMAD H. BEHFAR, ELINA JANSSON, JARI REKILA, JUSSI HILTUNEN, ERIC VIN, KATIA OBRACZKA *WIP Paper*

Labelled Control Improvisation *University of California Santa Cruz*

ERIC VIN *Bachelor's Thesis*

An IoT System for Autonomous, Continuous, Real-Time Patient Monitoring and Its Application to Pressure Injury Management *ICDH 2021*

SAM MANSFIELD, ERIC VIN, KATIA OBRACZKA *Conference Paper*

An IoT-Based System for Autonomous, Continuous, Real-Time Patient Monitoring and Its Application to Pressure Injury Management *DCOSS 2021*

SAM MANSFIELD, ERIC VIN, KATIA OBRACZKA *Poster Paper*
Note: Extended in Conference Paper above

Service

Member, Artifact Evaluation Committee *ICCPS 2023*

Projects

Scenic

HTTPS://GITHUB.COM/BERKELEYLEARNVERIFY/SCENIC

- A domain-specific probabilistic programming language for modeling the environments of cyber-physical systems like robots and autonomous cars. Scenic has been used for the development, training, and testing of cyber-physical systems. I began working on Scenic on version 3.0.

CI Toolkit

HTTPS://GITHUB.COM/UCSCFORMALMETHODS/CITOOLKIT

- A Python 3 library containing tools to create and solve instances of the Control Improvisation problem and its extensions.