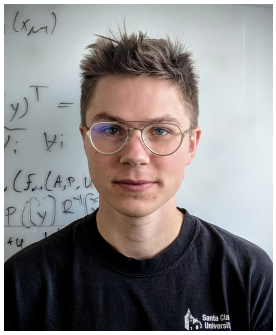

Nathaniel Tucker

Electrical and Computer Engineering
University of California, Santa Barbara
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EDUCATION

Ph.D. Candidate in Electrical Engineering — **Sept 2017 - May 2022**
University of California, Santa Barbara (UCSB) — *Expected*
Smart Infrastructure Systems Lab
Advisor: Mahnoosh Alizadeh

M.S. in Electrical Engineering — **Sept 2016 - June 2017**
Santa Clara University (SCU)
Emphasis in Communication and Systems (with Thesis)
Advisor: Maryam Khanbaghi
GPA: 4.00

B.S. in Computer Science, B.S. in Electrical Engineering — **Sept 2012 - June 2016**
Santa Clara University (SCU)
Summa Cum Laude
GPA: 3.89

RESEARCH INTERESTS

- Online (Real-Time) Optimization, Mechanism Design, and Machine Learning
- Smart Grid Technologies and Renewable Energy Integration
- Electric Transportation Systems
- Urban Planning / Smart Cities / Architecture

JOURNAL PUBLICATIONS

4. **N. Tucker**, M. Alizadeh, "An Online Scheduling Algorithm for a Community Energy Storage System", *IEEE Transactions on Smart Grid*, 2021, **Submitted**.
3. A. Moradipari, **N. Tucker**, M. Alizadeh, "Mobility-Aware Electric Vehicle Fast Charging Load Models with Geographical Price Variations", *IEEE Transactions on Smart Grid*, 2020, **Printed**.
2. **N. Tucker**, A. Moradipari, M. Alizadeh, "Constrained Thompson Sampling for Real-Time Electricity Pricing with Grid Reliability Constraints", *IEEE Transactions on Smart Grid*, 2019, **Printed**.
1. **N. Tucker**, M. Alizadeh, "An Online Admission Control Mechanism for Electric Vehicles at Public Parking Infrastructures", *IEEE Transactions on Smart Grid*, 2019, **Printed**.

CONFERENCE PUBLICATIONS

7. **N. Tucker**, G. Cezar, M. Alizadeh, "Real-Time Electric Vehicle Smart Charging at Workplaces: A Real-World Case Study", *IEEE Power Engineering Society General Meeting (PESGM)*, 2022, **Submitted**.

6. A. Moradipari, **N. Tucker**, T. Zhang, G. Cezar, M. Alizadeh, "Mobility-Aware Smart Charging of Electric Bus Fleets", *IEEE Power Engineering Society General Meeting (PESGM)*, 2020, **Printed**.
5. **N. Tucker**, B. Turan, M. Alizadeh, "Online Charge Scheduling for Electric Vehicles in Autonomous Mobility on Demand Fleets", *Intelligent Transportation Systems Conference (ITSC)*, 2019, **Printed**.
4. B. Turan, **N. Tucker**, M. Alizadeh, "Smart Charging Benefits in Autonomous Mobility on Demand Systems", *Intelligent Transportation Systems Conference (ITSC)*, 2019, **Printed**.
3. **N. Tucker**, B. Ferguson, M. Alizadeh, "An Online Pricing Mechanism for Electric Vehicle Parking Assignment and Charge Scheduling", *IEEE American Control Conference (ACC)*, 2019, **Printed**.
2. **N. Tucker**, M. Alizadeh, "Online Pricing Mechanisms for Electric Vehicle Management at Workplace Charging Facilities", *Allerton Conference on Communication, Control, and Computing*, 2018, **Printed**.
1. **N. Tucker**, M. Khanbaghi, "Jump Linear Quadratic Control for Energy Management of a Nanogrid", *IEEE American Control Conference (ACC)*, 2018, **Printed**.

PRESENTATIONS

4. 2020 Power Engineering Society General Meeting (PESGM), Quebec, CA, Aug. 2020, (Online)
3. 2019 Intelligent Transportation Systems Conference (ITSC), Auckland, NZ, Oct. 2019
2. 2019 American Control Conference (ACC), Philadelphia, PA, Jul. 2019
1. 2018 American Control Conference (ACC), Milwauekee, WI, Jun. 2018

AWARDS AND HONORS

- 2021 Winter: UCSB Electrical Engineering Department's Graduate Student Spotlight
- 2019-2020 Institute for Energy Efficiency (IEE) Excellence in Research Fellow. Fellowship award of $22,500 to 1 PhD student per year for cutting-edge research contributions in the field of sustainability and/or energy efficiency.
- 2019 Winter Quarter Student Spotlight, UCSB Center for Control, Dynamical Systems, and Computation (CCDC)
- 2017 Outstanding Graduate Student/Researcher, Department of Electrical Engineering, Santa Clara University
- 2016 Outstanding Graduating Senior for both GPA and contribution to the department, Department of Electrical Engineering, Santa Clara University
- 2016 First in Graduating Class, Department of Electrical Engineering, Santa Clara University
- 2016 Top 5% in Graduating Class, Department of Computer Science and Engineering, Santa Clara University
- 2013 KEEN Innovation Challenge, Maker Lab, School of Engineering, Santa Clara University
- 2012-2016 Dean's List, School of Engineering, Santa Clara University

TEACHING

University of California, Santa Barbara:

- **Winter 2022:** Teaching Assistant for ECE 137A: Advanced Circuits Electronics (Junior Level)
- **Winter 2021:** Designed and taught a course to local high school students in collaboration with UCSB's School for Scientific Thought (SST).
  Course Title: *The Global Energy Transition: From Fossil Fuels to Renewable Energy.*
  Course Overview: With the goal of decreasing greenhouse gas emissions, societies across the entire world are shifting their energy usage away from traditional fossil fuels and increasing their usage of renewable energy resources. While this is a promising shift for the future of our planet, there are many obstacles to overcome during this transition. In this class, students will learn about the traditional methods for producing energy as well as the increasingly popular sustainable methods including solar, wind, hydro, geothermal, tidal, and biomass. We will discuss how these renewable generation methods work, how they affect our societies, and what challenges stand in the way.
- **Spring 2018:** Teaching Assistant for ECE 10C: Circuits 3 (Freshman/Sophomore Level)

Santa Clara University:

- **Spring 2017:** Teaching Assistant for ELEN 50: Circuits 1
- **Winter 2017:** Teaching Assistant for ELEN 50: Circuits 1
- **Fall 2016:** Teaching Assistant for ELEN 130: Control Theory
- **Fall 2016:** Teaching Assistant for ELEN 50: Circuits 1

MENTORING

UCSB EUREKA Program:

- **2021:** Mentored undergraduate EUREKA scholar Gil Sia. Together we studied potential electricity cost savings from optimally scheduling electric vehicle charging subject to time-of-use electricity rates.
- **2020:** Mentored undergraduate EUREKA scholar Kelly Lin. Together we designed algorithms to predict electric vehicles' charging session parameters from historical data.

UCSB & U.S. Navy PIPELINES Program:

- **Summer 2021:** Mentored Sebastian Cervantes, Alec Bronson Wheelan, and Andre Yousefian for their project *Microgrid Test Bed*. Together we worked to improve resiliency of an isolated microgrid on the Channel Islands off the coast of California.
- **Summer 2019:** Mentored Juan Carillo and Emily Chapman for their project *Don't Crack Under Pressure: Creating a Pressure-Tolerant Circuit Board*. Together we designed, prototyped, and tested a capsule to protect underwater circuitry.

Other:

- **2019:** Mentored undergraduate Tuo Zhang. Together we formulated a MILP to find the minimal cost charging and routing schedules for the electric buses in the Marguerite Shuttle Fleet at Stanford. The work resulted in a paper published in PESGM 2020.

SERVICE

Journal Reviewer:

- IEEE Transactions on Smart Grid
- IEEE Transactions on Intelligent Transportation Systems
- IEEE Transactions on Industry Applications
- Elsevier: Electric Power Systems Research

Conference Reviewer:

- IEEE Conference on Decision and Control
- IEEE American Control Conference
- IEEE Power & Energy Society General Meeting
- IEEE GlobalSip
- IEEE ITSC
- IEEE SmartGridComm

Society Membership:

- IEEE, 2012-Current
- IEEE Intelligent Transportation Systems Society (ITSS)
- IEEE Power Engineering Society (PES)
- Tau Beta Pi Engineering Honor Society, 2014-Current
- Santa Clara University IEEE Student Branch, President, 2014
- Santa Clara University IEEE Student Branch, Treasurer, 2013

INDUSTRY EXPERIENCE

Lockheed Martin Space Systems Company **Summer 2016**
Systems Engineering Intern
Sunnyvale, CA

Lockheed Martin Space Systems Company **Summer 2015**
Survivability Engineering Intern
Littleton, CO

Cooper Environmental Services **Summer 2014**
Software Engineering Intern
Portland, OR