



# Nathaniel Tucker

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## EDUCATION

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- Ph.D. in Electrical Engineering** 2017-Current  
*University of California, Santa Barbara (UCSB)*  
Smart Infrastructure Systems Lab  
Advisor: Mahnoosh Alizadeh
- M.S. in Electrical Engineering** 2016-2017  
*Santa Clara University (SCU)*  
Emphasis in Communication and Systems  
Advisor: Maryam Khanbaghi  
GPA: 4.00
- B.S. in Electrical Engineering, B.S. in Computer Science** 2012-2016  
*Santa Clara University (SCU)*  
Summa Cum Laude  
GPA: 3.89

## RESEARCH INTERESTS

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- Smart Grid Technologies and Renewable Energy Integration
- Optimization and Routing in Electric Transportation Systems
- Urban Planning / Smart Cities / Architecture

## JOURNAL PUBLICATIONS

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2. N. Tucker, A. Moradipari, and M. Alizadeh, "Constrained Thompson Sampling for Real-Time Electricity Pricing with Grid Reliability Constraints", *IEEE Transactions on Smart Grid*, 2019, **Submitted**.
1. N. Tucker and M. Alizadeh, "An Online Admission Control Mechanism for Electric Vehicles at Public Parking Infrastructures", *IEEE Transactions on Smart Grid*, 2019, **Printed**.

## CONFERENCE PUBLICATIONS

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6. A. Moradipari, N. Tucker, T. Zhang, G. Cezar, and M. Alizadeh, “Mobility-Aware Smart Charging of Electric Bus Fleets”, *IEEE Power Engineering Society General Meeting (PESGM)*, 2020, **Submitted**.
5. N. Tucker, B. Turan, and M. Alizadeh, “Online Charge Scheduling for Electric Vehicles in Autonomous Mobility on Demand Fleets”, *Intelligent Transportation Systems Conference (ITSC)*, 2019, **To Appear**.
4. B. Turan, N. Tucker, and M. Alizadeh, “Smart Charging Benefits in Autonomous Mobility on Demand Systems”, *Intelligent Transportation Systems Conference (ITSC)*, 2019, **To Appear**.
3. N. Tucker, B. Ferguson, and M. Alizadeh, “An Online Pricing Mechanism for Electric Vehicle Parking Assignment and Charge Scheduling”, *IEEE American Control Conference (ACC)*, 2019, **To Appear**.
2. N. Tucker and M. Alizadeh, “Online Pricing Mechanisms for Electric Vehicle Management at Workplace Charging Facilities”, *56th Allerton Conference on Communication, Control, and Computing*, 2018, **Printed**.
1. N. Tucker and M. Khanbaghi, “Jump Linear Quadratic Control for Energy Management of a Nanogrid”, *IEEE American Control Conference (ACC)*, 2018, **Printed**.

## PRESENTATIONS

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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), Milwaukee, WI, Jun. 2018

## AWARDS AND HONORS

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- 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 & MENTORSHIP**

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@ UCSB:

- 2018-2019: Co-mentored undergraduate student Tuo Zhang. Joint work resulted in a conference paper titled "Mobility-Aware Smart Charging of Electric Bus Fleets" submitted to PESGM 2020.

@ UCSB & Port Hueneme Naval Base:

- Summer 2019: Problem-based Initiatives for Powerful Engagement and Learning In Naval Engineering and Science (PIPELINES) program. Mentored team of undergraduate students working on an underwater electronics project for the Navy.  
*Project Title:* "Don't Crack under Pressure: Creating a Pressure-Tolerant Circuit Board"  
*Interns:* Juan Carrillo, Emily Chapman  
*Project Mentors:* Nathaniel Tucker, Bradley Hunter

@ University of California, Santa Barbara, ECE Department:

- Spring 2018: Teaching Assistant (TA) for ECE 10C: Circuits, Devices, and Systems

@ Santa Clara University, ELEN Department:

- Spring 2017: Teaching Assistant (TA) for ELEN 50: Electric Circuits
- Winter 2017: Teaching Assistant (TA) for ELEN 50: Electric Circuits
- Fall 2016: Teaching Assistant (TA) for ELEN 50: Electric Circuits
- Fall 2016: Teaching Assistant (TA) for ELEN 130: Control Systems

## **SERVICE**

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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: 2019
- IEEE American Control Conference: 2019
- IEEE Power & Energy Society General Meeting: 2018, 2019

- IEEE GlobalSip: 2018, 2019
- IEEE ITSC: 2018, 2019
- IEEE SmartGridComm: 2018

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

Other:

- @ *American Control Conference (ACC) 2019*:
  - July 2019: Participated in the Control of Networked Transportation Systems (CNTS) Workshop, in Philadelphia, PA. Took notes and helped write the executive summary for the workshop.

## **INDUSTRY EXPERIENCE**

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<b>Lockheed Martin Space Systems Company</b> <i>Systems Engineering Intern</i> Sunnyvale, CA	Summer 2016
<b>Lockheed Martin Space Systems Company</b> <i>Survivability Engineering Intern</i> Littleton, CO	Summer 2015
<b>Cooper Environmental Services</b> <i>Software Engineering Intern</i> Portland, OR	Summer 2014