

Brendon G. Anderson

bganderson@berkeley.edu

Education **University of California, Berkeley** Aug. 2018 – Present
Ph.D. in Controls
Advisor: Somayeh Sojoudi
Research Areas: Optimization, Machine Learning, Control Theory
Minors: Optimization, Statistics
GPA: 4.0/4.0

University of California, Los Angeles Sep. 2015 – Mar. 2018
B.S. in Mechanical Engineering
Technical Breadth Area: Mathematics
GPA: 4.0/4.0 (*summa cum laude*)

Experience **Graduate Student Researcher — UC Berkeley** Aug. 2018 – Present
Advisor: Somayeh Sojoudi
• Researched global optimality in nonconvex optimization problems for computer vision and machine learning.

Jr. Development Engineer — UCLA Engineering Jan. 2018 – Jun. 2018
Advisor: Robert M'Closkey
• Designed, fabricated, and tested low-frequency folded pendulum accelerometer for use in UCLA's dynamic systems and control laboratories.

CVT Analysis, Design, Control — Baja SAE Sept. 2015 – Jun. 2018
• Developed electronic continuously variable transmission (CVT) and executed system identification and control.
• Modeled mechanical CVT and constructed flyweight optimization program.

Research Assistant — UCLA Mathematics Jun. 2017 – Aug. 2017
Advisors: Matt Haberland, Olga Turanova, and Andrea L. Bertozzi
• Formulated performance quantification methods for swarm coverage control algorithms.

Publications [1] **B. G. Anderson**, Z. Ma, J. Li, and S. Sojoudi, "Tightened convex relaxations for neural network robustness certification," 2020. Under review.
[2] **B. G. Anderson** and S. Sojoudi, "Global optimality guarantees for nonconvex unsupervised video segmentation," in *Proceedings of the 57th Annual Allerton Conference on Communication, Control, and Computing*, pp. 965–972, 2019.
[3] **B. G. Anderson**, E. Loeser, M. Gee, F. Ren, S. Biswas, O. Turanova, M. Haberland, and A. L. Bertozzi, "Quantifying robotic swarm coverage," in

Informatics in Control, Automation and Robotics: 15th International Conference, ICINCO 2018, Porto, Portugal, July 29–31, 2018, Revised Selected Papers, vol. 613 of *Lecture Notes in Electrical Engineering*, pp. 276–301, Springer, 2019.

- [4] **B. G. Anderson**, E. Loeser, M. Gee, F. Ren, S. Biswas, O. Turanova, M. Haberland, and A. L. Bertozzi, “Quantitative assessment of robotic swarm coverage,” in *Proceedings of the 15th International Conference on Informatics in Control, Automation and Robotics (ICINCO)—Volume 2*, pp. 91–101, 2018.

Awards	• Graduate Division Block Grant Award, UC Berkeley	Apr. 2019
	• Harry M. Showman Prize (schoolwide research award), UCLA	Jun. 2018
	• Jonathan David Wolfe Memorial Scholarship, UCLA	Apr. 2018

Teaching	Supplemental Instructor — Palomar College	
	• <i>Electromagnetism</i> (PHYS 231)	Spring 2015
	• <i>General Chemistry</i> (CHEM 115)	Fall 2014, Spring 2015

Professional Activities	• Peer Advisor for the Bay Area Graduate Pathways to Stem (GPS) program, hosted by UC Berkeley Engineering and Stanford Engineering, 2020.
	• Grant proposal contributor; assisted with writing DARPA funding proposal, 2019.
	• Chair of the session “Data Analytics”, 57th Annual Allerton Conference on Communication, Control, and Computing, 2019.

Relevant Coursework	Optimization
	• <i>Nonlinear Programming</i> , Professor Javad Lavaei
	• <i>Convex Optimization</i> , Professors Somayeh Sojoudi and Laurent El Ghaoui
	• <i>Optimization Models</i> , Professors Laurent El Ghaoui and Alex Bayen

Machine Learning

- *Statistical Learning Theory* (audit), Professors Ben Recht and Moritz Hardt
- *Learning and Optimization*, Professor Anil Aswani
- *Deep Learning* (online), Professor Andrew Ng
- *Machine Learning* (online), Professor Andrew Ng

Control Theory

- *Nonlinear Systems: Analysis, Stability, and Control*, Professor Claire Tomlin
- *Advanced Control Theory I*, Professor Roberto Horowitz
- *Advanced Control Theory II*, Professor Masayoshi Tomizuka
- *Linear Dynamic Systems*, Professor Robert M’Closkey

- *Digital Control*, Professor Tsu-Chin Tsao

Mathematics and Statistics

- *Theoretical Statistics (Classical)*, Professor Will Fithian
- *Theoretical Statistics (High-dimensional)*, Professor Yan Shuo Tan
- *Engineering Mathematics*, Professors Andrew Packard, Somayeh Sojoudi, and Kameshwar Poolla
- *Analysis (Real; Complex; Numerical)*
- *Differential Equations (Ordinary; Partial)*

Skills

Programming: MATLAB, Python, C++, CVX
Tools and Applications: L^AT_EX, TikZ, LabVIEW