

Brendon G. Anderson

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Education	University of California, Berkeley	Aug. 2018 – Present
	Ph.D. in Control Theory <i>Advisor:</i> Somayeh Sojoudi <i>Research Areas:</i> Optimization, Machine Learning, Control Theory <i>Minors:</i> Optimization, Statistics	
	University of California, Berkeley	Aug. 2018 – May 2020
	M.S. in Control Theory <i>Thesis:</i> <i>Towards Optimality and Robustness Guarantees for Data-Driven Learning and Decision Making</i>	
	University of California, Los Angeles	Sep. 2015 – Mar. 2018
	B.S. in Mechanical Engineering (<i>summa cum laude</i>) <i>Technical Breadth Area:</i> Mathematics	

Experience	Graduate Student Researcher — UC Berkeley	Aug. 2018 – Present
	<i>Advisor:</i> Somayeh Sojoudi <ul style="list-style-type: none">Conducted various research projects surrounding robustness and optimality guarantees for nonconvex optimization problems in machine learning.	
	Jr. Development Engineer — UCLA Engineering	Jan. 2018 – Jun. 2018
	<i>Advisor:</i> Robert M'Closkey <ul style="list-style-type: none">Designed, fabricated, and tested low-frequency folded pendulum accelerometer for use in UCLA's dynamic systems and control laboratories.	
	Research Assistant — UCLA Mathematics	Jun. 2017 – Aug. 2017
	<i>Advisors:</i> Matt Haberland, Olga Turanova, and Andrea L. Bertozzi <ul style="list-style-type: none">Formulated performance quantification methods for swarm coverage control algorithms.	

Publications	[1] B. G. Anderson and S. Sojoudi, "Certifying neural network robustness to random input noise from samples," <i>arXiv preprint arXiv:2010.07532</i> , 2020.
	[2] B. G. Anderson and S. Sojoudi, "Data-driven assessment of deep neural networks with random input uncertainty," <i>arXiv preprint arXiv:2010.01171</i> , 2020.
	[3] B. G. Anderson , Z. Ma, J. Li, and S. Sojoudi, "Tightened convex relaxations for neural network robustness certification," in <i>Proceedings of the 59th IEEE Conference on Decision and Control</i> , 2020.
	[4] B. G. Anderson and S. Sojoudi, "Global optimality guarantees for nonconvex unsupervised video segmentation," in <i>Proceedings of the 57th Annual Allerton Conference on Communication, Control, and Computing</i> , pp. 965–972, 2019.

- [5] **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.
- [6] **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.

Invited Talks	1. INFORMS Annual Meeting, National Harbor, MD	Nov. 2020
	“Partition-based convex relaxations for robustness certification of ReLU neural networks”	
	2. Conference on Control Technology and Applications, Montréal	Aug. 2020
	“Robustness analysis of neural networks”	
	3. Institute for Pure and Applied Mathematics, Los Angeles, CA	Aug. 2017
	“Robotic swarm analysis”	

Awards	1. Travel Support Award, Conference on Decision and Control	Dec. 2020
	2. Graduate Assembly Professional Development Award, UC Berkeley	Aug. 2020
	3. Graduate Division Block Grant Award, UC Berkeley	Apr. 2019
	4. Harry M. Showman Prize (schoolwide research award), UCLA	Jun. 2018
	5. Jonathan David Wolfe Memorial Scholarship, UCLA	Apr. 2018

Teaching	Graduate Student Instructor — UC Berkeley	
	1. <i>Nonlinear and Discrete Optimization</i> (IEOR 160)	Fall 2020
	Supplemental Instructor — Palomar College	
	1. <i>Electromagnetism</i> (PHYS 231)	Spring 2015
	2. <i>General Chemistry</i> (CHEM 115)	Fall 2014, Spring 2015

Professional Activities	1. Peer Advisor for the Bay Area Graduate Pathways to Stem (GPS) program, hosted by UC Berkeley Engineering and Stanford Engineering, 2020.	
	2. Grant proposal contributor; assisted with writing DARPA funding proposal, 2019.	
	3. Chair of the session “Data Analytics”, 57th Annual Allerton Conference on Communication, Control, and Computing, 2019.	

Relevant Optimization**Coursework**

1. *Nonlinear Programming*, Professor Javad Lavaei
2. *Convex Optimization*, Professors Somayeh Sojoudi and Laurent El Ghaoui
3. *Optimization Models*, Professors Laurent El Ghaoui and Alex Bayen

Machine Learning

1. *Statistical Learning Theory* (audit), Professors Ben Recht and Moritz Hardt
2. *Learning and Optimization*, Professor Anil Aswani
3. *Deep Learning* (online), Professor Andrew Ng
4. *Machine Learning* (online), Professor Andrew Ng

Control Theory

1. *Nonlinear Systems: Analysis, Stability, and Control*, Professor Claire Tomlin
2. *Advanced Control Theory I*, Professor Roberto Horowitz
3. *Advanced Control Theory II*, Professor Masayoshi Tomizuka
4. *Linear Dynamic Systems*, Professor Robert M'Closkey
5. *Digital Control*, Professor Tsu-Chin Tsao

Mathematics

1. *Topology and Analysis*, Professor Alan Hammond
2. *Engineering Mathematics*, Professors Andrew Packard, Somayeh Sojoudi, and Kameshwar Poolla
3. *Analysis (Real; Complex; Numerical)*
4. *Differential Equations (Ordinary; Partial)*

Statistics

1. *Theoretical Statistics (Classical)*, Professor Will Fithian
2. *Theoretical Statistics (High-dimensional)*, Professor Yan Shuo Tan