# Brendon G. Anderson

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**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*)

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**Experience**  **Graduate Student Researcher — UC Berkeley**  Aug. 2018 – Present
*Advisor:* Somayeh Sojoudi
- 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
*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.

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**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.

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| **Awards** | |
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| • 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 |

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**Teaching**

**Supplemental Instructor — Palomar College**
- *Electromagnetism* (PHYS 231) — Spring 2015
- *General Chemistry* (CHEM 115) — Fall 2014, Spring 2015

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**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.

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**Relevant Coursework**

**Optimization**
- *Nonlinear Programming*, Professor Javad Lavaei
- *Convex Optimization*, Professors Somayeh Sojoudi and Laurent El Ghaoui
- *Optimization Models*, 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*)

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**Skills**  *Programming:* MATLAB, Python, C++, CVX
*Tools and Applications:* LaTeX, TikZ, LabVIEW