

Adrian Stein

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Louisiana State University
Baton Rouge, LA 70803
[Google Scholar](#), [ResearchGate](#), [LinkedIn](#)

EDUCATION

- PhD Student, University at Buffalo** *August 2019 - June 2024*
Major: Mechanical Engineering | GPA: 4.00/4.00
Dissertation: *Global and Local Sensitivity-based Design of Robust Precision Motion Controllers*
- M.S., Technical University of Berlin, Germany** *May 2019*
Major: Mechanical Engineering | GPA: 3.95/4.00
Study abroad at Peter the Great St. Petersburg Polytechnic University, Russia
Thesis: *Assessment of the Concept of Microturbine Technology as a Range Extender for Electric Vehicles*
- B.S., Technical University of Berlin, Germany** *April 2016*
Major: Mechanical Engineering | GPA: 3.94/4.00
Thesis: *Investigation of the influences of catalyst aging and operating points on the functionality of a NOX storage catalytic converter in EU6 diesel cars*

PROFESSIONAL EXPERIENCE

- Assistant Professor, Louisiana State University** *Aug. 2024*
Baton Rouge, Louisiana
- Graduate Assistant, University at Buffalo** *Aug. 2019 - Jun. 2024*
Buffalo, New York
- Intern, Mitsubishi Electric Research Laboratories (MERL)** *Aug. 2022 - Dec. 2022*
Cambridge, Massachusetts
- Master Thesis, Volkswagen R&D** *Oct. 2018 - May 2019*
Wolfsburg, Germany
- Student Employee, Siemens R&D** *Oct. 2017 - June 2018*
Ludwigsfelde, Germany
- Visiting Scholar, Kraków University of Technology** *Oct. 2017*
Kraków, Poland
- Visiting Scholar, Norwegian University of Science and Technology (NTNU)** *Oct. 2017*
Trondheim, Norway
- Intern, MAN** *July 2017 - Sep. 2017*
Berlin, Germany
- Bachelor Thesis, IAV Automotive Engineering** *Oct. 2015 - Mar. 2016*
Gifhorn, Germany
- Intern, Pontifícia Universidade Católica de Minas Gerais** *Aug. 2014 - Oct. 2014*
Belo Horizonte, Brazil

RESEARCH INTEREST

- Large-Scale High-Speed 3D Printing
- Global Sensitivity Analysis in Controller Design
- Applications of ArUco Markers in Cyber-Physical Systems
- Desensitized Control for Precision Manufacturing
- Precision Motion Control on UAV-Payload Systems

HONORS & AWARDS

08/2019 - 08/2023	Presidential Fellowship University at Buffalo <i>One of the most prestigious fellowships for international PhD students</i>
06/2022	Mark Diamond Research Fund Award University at Buffalo <i>Funded large-scale 3D printer project with \$2850</i>
05/2021	Silent Hoist and Crane Co., Materials Handling Prize Award University at Buffalo <i>1st Place awarded with \$4000</i>
02/2021	Graduate Research Competition of the Department of MAE University at Buffalo <i>2nd Place</i>
10/2016 - 10/2018	German National Scholarship Federal Ministry of Education and Research & MAN Diesel & Turbo SE
10/2017	Federal Ministry of Education and Research & DAAD Scholarship Nordic Water Network with NTNU and Kraków University of Technology
09/2016 - 06/2017	Erasmus+ Scholarship Technical University of Berlin <i>For study abroad at Peter the Great St. Petersburg Polytechnic University, Russia</i>
10/2015 - 04/2016	German National Scholarship Federal Ministry of Education and Research & Siemens AG Power and Gas Division

PUBLICATIONS

[ORCID](#), [Web of Science](#), [Google Scholar](#)

Refereed Journal Papers

Corresponding author denoted by (*)

- J5. D. Vexler, [A. Stein](#), T. Singh*, “Tabletop experiment to determine the center of percussion of a baseball bat,” *International Journal of Mechanical Engineering Education*, Aug. 2024.
- J4. [A. Stein](#) and T. Singh*, “Convex Optimization Based Design of Finite Impulse Response Filters for Reference Shaping,” *ASME. J. Dyn. Sys., Meas., Control.* ; 146(5): 051003, Jun. 2024.
- J3. [A. Stein](#) and T. Singh*, “Minimum time control of a gantry crane system with rate constraints,” *Mechanical Systems and Signal Processing*, vol. 190. Elsevier BV, p. 110120, May 2023.
- J2. [A. Stein](#), T. Parcic, and T. Singh*, “From playground swings to sway control of cranes: An active pendulum experiment,” *International Journal of Mechanical Engineering Education*, vol. 51, no. 3. SAGE Publications, pp. 139–154, Feb. 23, 2023.
- J1. [A. Stein](#), M. Nouh, and T. Singh*, “Widening, transition and coalescence of local resonance band gaps in multi-resonator acoustic metamaterials: From unit cells to finite chains,” *Journal of Sound and Vibration*, vol. 523. Elsevier BV, p. 116716, Apr. 2022.

Conference Proceedings and Presentations

*Moved to virtual format due to COVID-19

- C7. [A. Stein](#) and T. Singh*, “Robust Optimal Control of Nonlinear Systems via Homotopy Shooting Method,” 2024 American Control Conference (ACC). IEEE, Jul. 10, 2024.
- C6. [A. Stein](#), D. Vexler, and T. Singh*, “ArUco based Reference Shaping for Real-time Precision Motion Control for Suspended Payloads,” 2024 American Control Conference (ACC). IEEE, Jul. 10, 2024.
- C5. [A. Stein](#) and T. Singh*, “Global Sensitivity Analysis based Design of Input Shapers,” *IFAC-PapersOnLine*, vol. 55, no. 36. Elsevier BV, pp. 67–72, 2022.
- C4. [A. Stein](#), M. Nouh, and T. Singh, Conditions and Mechanisms of Local Resonance Band Gap Merging in Dual-Periodic Acoustic Metamaterials, ASME International Mechanical Engineering Congress and Exposition (IMECE), Columbus, OH, Oct. 30 - Nov. 3, 2022.
- C3. [A. Stein](#) and T. Singh*, “Velocity Constrained Time-Optimal Control of a Gantry Crane System,” 2022 American Control Conference (ACC). IEEE, Jun. 08, 2022.

(Invited Session - Vibrations: Modeling, Analysis, and Control)
- C2. [A. Stein](#) and T. Singh*, “Input Shaped Control of a Gantry Crane with Inertial Payload,” 2022 American Control Conference (ACC). IEEE, Jun. 08, 2022.
- C1. [A. Stein](#), M. Nouh, and T. Singh, Multi-Resonator Elastic Metamaterials: From Series and Parallel to Hybrid Configurations, ASME International Mechanical Engineering Congress and Exposition (IMECE), Nov. 1-4, 2021.*

DIGITAL MEDIA & ONLINE FEATURES

- 3. [Project opportunity for research in Experiential Learning Network](#) (2023)
- 2. [Invited talk at Fellow Research Talks, topic: Nonlinear Control of a Knuckle-Boom Crane With an Inertial Payload](#) (2020)

1. [Announcement of the Presidential Fellows](#) (2019)

TEACHING EXPERIENCE

Instructor

Assistant Professor, Louisiana State University

Aug. 2024 - Present

- ME 2543: Simulation Methods for Mechanical Engineers (Spring 2025)
- ENGR 4100: Industrial Robotics (Fall 2024)

Teaching Assistant

PhD Candidate, University at Buffalo

Aug. 2019 - Jun. 2024

- MAE 340: Dynamic Systems (Fall 2023)
- MAE 543: Continuous Control (Fall 2020, Fall 2021)
- EAS 230: Engineering Computation (Spring 2020)
- EAS 199: Engineering Principles (Fall 2019)

PROFESSIONAL MEMBERSHIP & SERVICES

● **Reviewer/Referee for Scientific Journals**

- IEEE Transactions on Automation Science and Engineering
- Optimal Control Applications and Methods
- IEEE Robotics and Automation Letters
- Journal of Vibration and Acoustics
- Journal of Sound and Vibration
- Control Engineering Practice
- TWMS Journal of Applied and Engineering Mathematics
- Transactions on Mechatronics
- IEEE Transactions on Industrial Electronics
- ASME Journal of Dynamic Systems, Measurement and Control

● **Reviewer/Referee for Scientific Conferences**

- IEEE Conference on Control Technology and Applications (CCTA)
- North American Manufacturing Research Conference (NAMRC)

● **Proposal Reviewer**

- National Science Foundation (2025)
- Mark Diamond Research Fund for Research Grants (Oct. 2021 - Feb. 2022)

● **Community Outreach and Engagement**

- President, Mechanical and Aerospace Engineering - Graduate Student Association, University at Buffalo (2022 - 2023)
- Buddy Program Ambassador, Berlin (2017 - 2018)

MENTORING

(1) PhD Students

- Nyi Nyi Aung (Spring 2025 - ongoing)
- Karan Baker (Fall 2024 - ongoing)

(2) M.S. Students

- Sanjay Maharjan (Fall 2024 - ongoing)
- Annan Talukder (Fall 2023)
- Paul Eidemüller (Fall 2023)
- Tarik Parcic (Fall 2021)

(3) Undergraduate Students

- Mark Mills (Spring 2025 - ongoing)
- Carter Burdette (Spring 2025 - ongoing)
- Dutch Dunphy (Spring 2025 - ongoing)
- Yousuf Atteia (Fall 2024 - ongoing)
- Alexander Barletta (Spring 2024)
- Rowan Daly (Fall 2023, Spring 2024)
- Jacob Derby (Summer 2023, Fall 2023, Spring 2024)
- Michael Fowler (Spring 2023)
- Casey Hayes (Spring 2022)
- Miaowen Zeng (Summer 2021)

(4) High School Students

- David Vexler (Summer 2023, Fall 2023, Spring 2024, Summer 2024)

TRAINING & COURSEWORK

University at Buffalo

Collaborative Institutional Training Initiative (CITI) Program

- Conflicts of Interest and Commitment
- Mentoring
- Peer Review
- Responsible Conduct of Research

Sep. 2020