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Profile

MASc in Electrical and Computer Engineering with expertise in optimization and control of cyber-physical systems. My research focused on developing tractable and efficiently solvable control design methods with rigorous theoretical guarantees.

Education

University of Waterloo, Waterloo, Canada — September 2023 - August 2025
M.A.Sc., Electrical and Computer Engineering
Advised by Dr. Michael W. Fisher
Coursework: Fundamentals of Optimization, Optimization Methods, Distributed Optimization, Multivariable Control, Stochastic Control, Nonlinear Control
- Thesis: Convex Reparameterizations for Efficient Mixed $\mathcal{H}_2/\mathcal{H}_\infty$ Feedback Control [thesis]

Wuhan University, Wuhan, China — September 2019 - June 2023
B.Sc., Applied Mathematics
- Thesis: Algebraic Connectivity Analysis of Directed Double-Ring Network

Preprints

[J_1] **Z. Fang** and M. W. Fisher, "Convex Reparameterizations for Mixed $\mathcal{H}_2/\mathcal{H}_\infty$ Output Feedback Control Design," 2025.

[J_2] **Z. Fang** and M. W. Fisher, "$\mathcal{H}_2/\mathcal{H}_\infty$ Control Design with System Level Synthesis and Simple Pole Approximation in Continuous Time," 2025.

Publications

[C_1] **Z. Fang** and M. W. Fisher, "Constrained $\mathcal{H}_2/\mathcal{H}_\infty$ control design of dynamic virtual power plants via system level synthesis and simple pole approximation," in *2025 IEEE Electrical Power and Energy Conference (EPEC)*, 2025, to appear. [paper]

[C_2] **Z. Fang** and M. W. Fisher, "Hybrid state space and frequency domain system level synthesis for sparsity-promoting $\mathcal{H}_2/\mathcal{H}_\infty$ control design," in *2024 IEEE 63rd Conference on Decision and Control (CDC)*, pp. 8473–8478, 2024. [paper]

Presentations

IEEE Electrical Power and Energy Conference [slides]	2025
MASc Seminar, University of Waterloo [slides] [slides_handout]	2025
IEEE Conference on Decision and Control [slides] [slides_handout]	2024

Teaching Experience

ECE 207	Signals and Systems	Spring 2025
MATH 213	Signals, Systems, and Differential Equations	Winter 2025
MTE 484	Control Applications	Fall 2024
ECE 608	Quantitative Methods in Biomedical Engineering	Spring 2024
NE 488B	Nano-instrumentation Lab	Winter 2024

Community Involvement

UW ECE Mentorship Program, *Mentor*	2025
American Control Conference, *Student Volunteer*	2024
WHU Math Undergrad-Mentor Program, *Mentor*	2021 - 2022
WHU Mathematical Modeling Association, *Director*	2019 - 2022

Honors and Awards

Faculty of Engineering Award	2025
International Master's Award of Excellence, Graduate Research Studentship - 2 years of full tuition support, University of Waterloo	2023 - 2025
School of Mathematics Scholarship (9/math undergrads), Wuhan University	2021
National First Prize (292/45075), China Undergrad Mathematical Contest in Modeling	2021