Luke Bhan

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Education

University of California, San Diego — *San Diego, CA*
Ph.D. in Computer Science — *Sept 2022 - Current*
Advisor: Yuanyuan Shi
Studying intersection of control theory and learning

Vanderbilt University — *Nashville, TN*
Masters of Science — *August 2018 - May 2022*
Advisor: Gautam Biswas
Accelerated MS/BS in Computer Science
Thesis: Deep Reinforcement Learning for Adaptive Control in Robotics

Vanderbilt University — *Nashville, TN*
Bachelor of Science — *August 2018 - May 2022*
Majored in Computer Science, Physics and Applied Math

Achievements

2023 **Department of Energy Computational Science Graduate Fellowship (DOE CSGF)**, Full funding for a Ph.D. student for up to 5 years.

2022 **Underwood Memorial Award for Most Outstanding Senior**, Vanderbilt Department of Physics and Astronomy — *Nashville, TN*

2021 **Best Student Paper Award**, 32nd Workshop Principle of Diagnosis — *Germany*

2020 **Best Undergraduate Publication**, Vanderbilt Department of Physics and Astronomy — *Nashville, TN*

Publications

Peer-Reviewed Conference Publications

[4] **Luke Bhan**, Yuanyuan Shi, Miroslav Krstic
Operator Learning for Nonlinear Adaptive Control
Learning for Dynamics and Control (In Journal of Machine Learning Research), 2023

[3] **Luke Bhan**, Marcos Quinones-Grueiro, Gautam Biswas
Concurrent Policy Blending and System Identification for Generalized Assistive Control
IEEE International Conference on Robotics and Automation (ICRA), 2022

[2] **Luke Bhan**, Marcos Quinones-Grueiro, Gautam Biswas
Fault Tolerant Control Combining Reinforcement Learning and Model-based Control
IEEE Systems of Fault Tolerant Control (SysTol), 2021

[1] Adam Stager, **Luke Bhan**, Andreas Malikopoulos, Liuhui Zhao
A Scaled Smart City for Experimental Validation of Connected and Automated Vehicles
Control in Transportation Systems (CTS), 2018

Journal Publications

[5] Miroslav Krstic, **Luke Bhan**, Yuanyuan Shi
Neural Operators of Backstepping Controller and Observer Gain Functions for Reaction-Diffusion PDEs
In Submission, Automatica, 2023

[4] **Luke Bhan**, Yuanyuan Shi, Miroslav Krstic
Neural Operators for Bypassing Gain and Control Computations in PDE Backstepping
In Submission, IEEE Transactions of Automatic Control (TAC), 2023

[3] **Luke Bhan**, Cody Covington, Kálmán Varga
Laser-Driven Petahertz Electron Ratchet Nanobubbles
Nano Letters, 2022

[2] **Luke Bhan**, Cody Covington, Kálmán Varga
Signatures of Atomic Structure in Subfemtosecond Laser-Driven Electron Dynamics in Nanogaps
Physics Review B, 2022

[1] **Luke Bhan**, Cody Covington, Kálmán Varga
Simulation of Photo-electron Spectrum and Electron Scattering by Dual Time Propagation
The Journal of Chemical Physics, 2021

Work Experience

Teaching Assistant, Vanderbilt University

Software Design Patterns. Taught by Prof. Graham Hemmingway.
Introduction to Probability and Statistics. Taught by Prof. Dylan Domel-White.
Introduction to Numerical Analysis. Taught by Prof. Larry Schumaker.

Software Engineering Intern, Mongo DB

Developed Compression Algorithms for their Timeseries Database.
Mentored by Henrik Edin.

Software Engineering Intern, T-Mobile

Developed an Internal Analytics Dashboard for Visualizing Network Loads.
Mentored by Ryan Rembert.