

Titles of MTHE 493 Projects for Fall Term 2025 / Winter Term 2026 (Supervisors in parentheses)

Large Language Model Distillation for Grade School Math Tutoring

Alex Wheeler, Colin Gould, Julianna Psaltakis, Michael Cronin, Mitchell Sabbadini (F. Alajaji)

AI-Powered Playlist Generation via Adversarial Autoencoders

Bruce Cao, Evan Graham, Josh Wagman, Lucas Musselman, Will Gorman (F. Alajaji)

Limiting the Spread of Medical Misinformation on Social Media Using a Polya Process

Aidan Van Straaten, Jack Fejer, Lindsay Atkinson, Mateo Huster, Viren Tated (F. Alajaji)

Optimizing Awareness Campaigns on Social Media for Food Product Recalls Using the Polya Process

Brooke Thomson, Douglass Jeffery, Isabelle Hill, Julia Perlin, Owen Wade (F. Alajaji)

Adaptive Symbol Timing for Binary Communication via Synchronized Chaotic Systems

Andrew Chillelli, Ben Cole, Ben Miske, John Williams, Luke Gaylor (K. Zhang)

Chaos-Based Synchronization for Secure Communication

Emma McNabney, Jessica Courtney, Matthew Sorokko, Ryan McCready, Thijs Nusselder (K. Zhang)

Pinning Impulsive Control in Power Grid Networks

Andrew Woollcombe, Ghassan Ali, Hazel Bakajsa, Jordan Corbett, Karl Wachner (K. Zhang)

Impulse Control for SIS and SIR Epidemic Model

Alexis Seaman, Katherine Justason, Koen Dyck, Nicholas Yeaman, Nya Hermann (K. Zhang)

Delta-Neutral Options Portfolio Rebalancing Strategy

Aarav Shah, Ben Shram, Eiqan Ahsan, Evan Ball, Gavin Riley (E. Demirci)

An Agentic Approach to Radio Frequency Signal Location in Urban Settings

Gwen Hickey, Ian Mak, Jack Rennie, Kalena McCloskey, Theo Lemay (E. Demirci)

Optimization & Design of Emergency Department Triage Systems

Jordan Siwak, Meghan Ward, Nolan Verboomen, Paige Snowden Smith, Reuben Nagel (E. Demirci)

Data Center Cooling with Q-Learning

George Biskaris, Jan Karcz, Kiera Tanner, Pavle Ilic, Yusen Qiu (E. Demirci)

Optimizing Power Generator Bids using Q-Learning

Natalie Chow, Rohan Kumar, Sam Joffe, Thomas Boyle (S. Yuksel)