

Augustinos D. Saravanos

Postdoctoral Associate
Laboratory for Information & Decision Systems (LIDS)
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Citizenship: US, Greek

RESEARCH INTERESTS

Towards Large-Scale Decision-Making: At the Intersection of Optimization and AI

Theory: large-scale optimization, optimal control, ML for optimization, generative modeling

Applications: multi-agent autonomy, robotics, transportation, logistics

EDUCATION

Georgia Institute of Technology Atlanta, GA
Ph.D. in Machine Learning 2025

Thesis: Distributed Optimization Architectures for Large-Scale Decision-Making

Advisor: Evangelos A. Theodorou

Committee: Arkadi S. Nemirovski, Efstathios Bakolas, Yao Xie, Justin Romberg

Georgia Institute of Technology Atlanta, GA
M.Sc. in Aerospace Engineering 2024

University of Patras Patras, Greece
Diploma in Electrical and Computer Engineering 2019

Thesis: Nonlinear Model Predictive Control for Space Robotic Systems

Co-advisors: Evangelos Papadopoulos, Nick Koussoulas

Class Rank: 2/211 (top 1%)

EXPERIENCE

Massachusetts Institute of Technology (MIT) Cambridge, MA
Postdoctoral Associate Aug 2025–present

Supervisor: Chuchu Fan

Focus: Flow/diffusion models for optimization, decision-making and autonomy

- ICML '26 Spotlight (top 2%) and CoRL '26 Spotlight (top 3%)
- Primary author of two awarded industry-sponsored proposals totaling \$370K (PI: Chuchu Fan)
- Led autonomous field inspection project with GE Vernova; on-site hardware demonstration on a quadruped

Georgia Institute of Technology Atlanta, GA
Graduate Research Assistant Aug 2020–Jul 2025

Supervisor: Evangelos A. Theodorou

Focus: Distributed optimization for large-scale decision-making

- First-author papers at RSS '21/'22/'23, T-RO '23, IROS '24, ACC '25 and ICLR '25
- Mentored 4 graduate and 1 undergraduate students: papers at ICLR '24, CDC '25 (×2), NeurIPS '25

BOSCH Center for Artificial Intelligence Pittsburgh, PA
Machine Learning Research Intern May–Aug 2023

Focus: Privacy-preserving collaborative AI via model alignment

- Three U.S. patent applications

PUBLICATIONS

(^{*}Equal contribution, [†]Equal advising)

Journal Publications

- [J5] Belief-guided Residual Adaptive Control for Safe Navigation under Unknown Disturbances, J. Choi, N. Schmid, O. So, **A.D. Saravanos** and C. Fan, *IEEE Robotics and Automation Letters (RA-L)*, 2026. Under revision.
- [J4] [Distributed Covariance Steering via Non-Convex ADMM for Large-Scale Multi-Agent Systems](#), **A.D. Saravanos**, I.M. Balci^{*}, A.T. Abdul^{*}, E. Bakolas and E.A. Theodorou, *IEEE Transactions on Automatic Control (TAC)*, 2026. Submitted.
- [J3] [Scaling Robust Optimization for Swarms: A Distributed Perspective](#), A.T. Abdul^{*}, **A.D. Saravanos**^{*} and E.A. Theodorou, *IEEE Transactions on Automatic Control (TAC)*, 2026. Submitted.
- [J2] [Second-Order Constrained Dynamic Optimization](#), Y. Aoyama, O. So, **A.D. Saravanos** and E.A. Theodorou, *International Journal of Robotics Research (IJRR)*, 2026.
- [J1] [Distributed Differential Dynamic Programming Architectures for Large-Scale Multi-Agent Control](#), **A.D. Saravanos**, Y. Aoyama, H. Zhu and E.A. Theodorou, *IEEE Transactions on Robotics (T-RO)*, 2023.

Conference Publications

- [C20] Learning to Optimize Actions with Flows, **A.D. Saravanos**, O. So and C. Fan, *International Conference on Learning Representations (ICLR)*, 2027. Submitted.
- [C19] Probability Measure Gradient Flows for Diffusion-Based Amortized Optimization, T. Chen, **A.D. Saravanos**, C. Fan and K. Wang, *International Conference on Learning Representations (ICLR)*, 2027. Submitted.
- [C18] WISH: Margin-Free Latent Control Barrier Functions via World-Model Imagination, E.Y. Yu^{*}, O. So^{*}, **A.D. Saravanos**, M. Cleaveland and C. Fan, *International Conference on Learning Representations (ICLR)*, 2027. Submitted.
- [C17] Sampling at Scale: Distributed Multi-Agent Trajectory Optimization, M. Jung, D.S. Georgiou, **A.D. Saravanos** and E.A. Theodorou, *IEEE International Conference on Robotics and Automation (ICRA)*, 2027. Submitted.
- [C16] [Pareto-Optimal Entropy-Regularized Trajectory Optimization](#), D.S. Georgiou, **A.D. Saravanos** and E.A. Theodorou, *IEEE International Conference on Robotics and Automation (ICRA)*, 2027. Submitted.
- [C15] [Language Grounded Bayesian Active Learning in Interactive Robot Planning](#), H. Li, C. Sobolewski, **A.D. Saravanos**, W. Tan, J. Karigiannis and C. Fan, *Conference on Robot Learning (CoRL)*, 2026. **Spotlight (top 3%)**.
- [C14] [Learning-to-Optimize via Deep Unfolded Flows](#), **A.D. Saravanos**, O. So, H.M. Sabbir Ahmad and C. Fan, *International Conference on Machine Learning (ICML)*, 2026. **Spotlight (top 2%)**.
- [C13] [Deep FlexQP: Accelerated Nonlinear Programming via Deep Unfolding](#), A. Oshin, R. Ghosh, **A.D. Saravanos** and E.A. Theodorou, *International Conference on Learning Representations (ICLR)*, 2026.

- [C12] [Momentum Multi-Marginal Schrödinger Bridge Matching](#),
P. Theodoropoulos, **A.D. Saravanos**, E.A. Theodorou[†] and G.H. Liu[†],
Neural Information Processing Systems (NeurIPS), 2025.
- [C11] [Nonlinear Robust Optimization for Planning and Control](#),
A.T. Abdul, **A.D. Saravanos** and E.A. Theodorou,
IEEE Conference on Decision and Control (CDC), 2025.
- [C10] [Operator Splitting Covariance Steering for Safe Stochastic Nonlinear Control](#),
A. Ratheesh, V. Pacelli, **A.D. Saravanos** and E.A. Theodorou,
IEEE Conference on Decision and Control (CDC), 2025.
- [C9] [Deep Distributed Optimization for Large-Scale Quadratic Programming](#),
A.D. Saravanos, H. Kuperman, A. Oshin, A.T. Abdul, V. Pacelli and E.A. Theodorou,
International Conference on Learning Representations (ICLR), 2025.
- [C8] [Scalable Robust Optimization for Safe Multi-Agent Control Under Deterministic Uncertainty](#),
A.T. Abdul*, **A.D. Saravanos*** and E.A. Theodorou,
American Control Conference (ACC), 2025.
- [C7] [Distributed Model Predictive Covariance Steering](#),
A.D. Saravanos, I.M. Balci, E. Bakolas and E.A. Theodorou,
IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2024.
- [C6] [A Robust Differential Neural ODE Optimizer](#),
P. Theodoropoulos, G.H. Liu, T. Chen, **A.D. Saravanos** and E.A. Theodorou,
International Conference on Learning Representations (ICLR), 2024.
- [C5] [Distributed Hierarchical Distribution Control for Very-Large-Scale Clustered Multi-Agent Systems](#),
A.D. Saravanos, Y. Li and E.A. Theodorou,
Robotics: Science and Systems (RSS), 2023.
- [C4] [Improved Exploration for Safety-Embedded DDP Using Tolerant Barrier States](#),
J.E. Kuperman, H. Almubarak, **A.D. Saravanos** and E.A. Theodorou,
International Conference on Advanced Robotics (ICAR), 2023.
- [C3] [Decentralized Safe Multi-Agent Stochastic Optimal Control using Deep FBSDEs and ADMM](#),
M.A. Pereira*, **A.D. Saravanos***, O. So and E.A. Theodorou,
Robotics: Science and Systems (RSS), 2022.
- [C2] [Receding Horizon Differential Dynamic Programming Under Parametric Uncertainty](#),
Y. Aoyama, **A.D. Saravanos** and E.A. Theodorou,
IEEE Conference on Decision and Control (CDC), 2021.
- [C1] [Distributed Covariance Steering with Consensus ADMM for Stochastic Multi-Agent Systems](#),
A.D. Saravanos, A.G. Tsolovikos, E. Bakolas and E.A. Theodorou,
Robotics: Science and Systems (RSS), 2021.

Workshop Papers

- [O2] Bayesian Active Learning for Intent Disambiguation in Interactive Robot Planning,
H. Li, C. Sobolewski, **A.D. Saravanos**, W. Tan, J. Karigiannis and C. Fan,
IROS Human–Robot Dialogue Workshop, 2026.
- [O1] [Sim2Real on the Robotarium Platform Using Decentralized Multi-Agent Safe Deep FBSDEs](#),
M.A. Pereira*, **A.D. Saravanos*** and E.A. Theodorou,
RSS Workshop on Scaling Robot Learning, 2022.

Theses

- [T2] Distributed Optimization Architectures for Large-Scale Decision-Making,
A.D. Saravanos
Ph.D. Thesis, Georgia Institute of Technology, 2025.
- [T1] Nonlinear Model Predictive Control for Space Robotic Systems,
A.D. Saravanos
Diploma Thesis, University of Patras, 2019.

GRANTS & SPONSORED RESEARCH

- [G2] Multi-robot Systems with Human-Enabled Collaboration 2026–2027
GE Vernova
Award: \$300,000
Period: Oct 2026–Sep 2027
Role: Primary proposal author; PI: Chuchu Fan
- [G1] Safety Guarantees and Stability Verification for End-to-End Autonomous Driving 2026
Hyundai Motor Group (HMG)
Award: \$70,000
Period: May–Nov 2026
Role: Primary proposal author; PI: Chuchu Fan
- [S1] Autonomous Field Inspection with Physical AI 2025–2026
GE Vernova
Period: Oct 2025–Sep 2026
Role: Project lead; PI: Chuchu Fan
Led technical execution, sponsor presentations and successful on-site demonstration.

AWARDS/FELLOWSHIPS

- Onassis Foundation Doctoral Fellowship 2021–2025
Four-year award for PhD studies financial support
- Gerondelis Foundation Doctoral Fellowship 2022
One-time award for PhD studies financial support
- Skouras Foundation Scholarship 2019
Top ECE student and in top 10 students of University of Patras for academic year 2018–19
- Valedictorian, Class of 2019, Fall Graduation Ceremony, ECE, University of Patras 2019
- Gold medal, National Science Olympiad 2013, Greece 2013

PATENTS

- [P3] [Collaborative learning with full model alignment](#) 2023
A.D. Saravanos, F.J. Cabrita Condessa, W.-Y. Lin, Z. Li and M.R. Ganesh
U.S. Patent Application No. 18/371,596.
- [P2] [Collaborative learning with full model alignment](#) 2023
A.D. Saravanos, F.J. Cabrita Condessa, W.-Y. Lin, Z. Li and M.R. Ganesh
U.S. Patent Application No. 18/371,594.
- [P1] [Collaborative learning with full model alignment](#) 2023
A.D. Saravanos, F.J. Cabrita Condessa, W.-Y. Lin, Z. Li and M.R. Ganesh
U.S. Patent Application No. 18/371,587.

SELECTED INVITED TALKS

Amazon Robotics, Motion Intelligence Seminar Series <i>Topic: Towards Large-Scale Autonomy: At the Intersection of Optimization and AI</i>	Oct 2026
Osaka Metropolitan University (OMU), Department of Core Informatics, Research Talk <i>Topic: Towards Large-Scale Autonomy: At the Intersection of Optimization and AI</i>	Jun 2026
2026 INFORMS Optimization Society Conference, Computational Optimization Track <i>Topic: Deep Learning-Aided Large-Scale Distributed Optimization</i>	Mar 2026
JST ASPIRE Meeting, Research Talk <i>Topic: Learning-to-Optimize via Generative Modeling</i>	Mar 2026
Worcester Polytechnic Institute, Robotics Engineering, Guest Lecture <i>Topic: Towards Large-Scale Autonomy: Multi-Agent Planning and Control</i>	Nov 2025
Bosch Center for Artificial Intelligence, Research Talk <i>Topic: Distributed Optimization Architectures for Large-Scale Decision-Making</i>	May 2025

TEACHING

Feedback Control Systems 16.30/31, MIT <i>Designed interactive, browser-based labs in which students experiment with live simulations, verify their analysis, and write up their findings.</i>	Fall 2026
AI in Robotics: Learning Algorithms, Design and Safety, MIT Professional Education <i>Co-instructor (with Prof. Chuchu Fan). Co-designed the curriculum and delivered a 3-day intensive course for industry professionals on learning-based robotics, control, and safety.</i>	July 2026
Feedback Control Systems 16.30/31, MIT <i>Lecture on “Advanced Topics: Optimal Control and Lyapunov Analysis”.</i>	Dec 2025
Robots at MET Program, University of Patras, Greece <i>Volunteer teacher. Taught teams of elementary school students on LEGO robotics.</i>	2018–2020
TISP (Teacher In-Service Program), IEEE Student Branch, University of Patras <i>Volunteer. Taught elementary school students basic concepts in engineering.</i>	2016–2020
Skagiopouleio Orphanage, Patras, Greece <i>Volunteer teacher. Organized an “Introduction to Coding” course for elementary school students.</i>	May 2017

MENTORSHIP/SUPERVISION

Graduate Students

Jaeyoun Choi, PhD student at MIT <i>Research topic: Belief-guided adaptive control for safe navigation under unknown disturbances Resulted in 1 RA-L (under revision) publication.</i>	2026–present
Eric Yang Yu, PhD student at MIT <i>Research topic: Latent control barrier functions via world-model imagination Resulted in 1 ICLR '27 submission.</i>	2026–present
Carson Sobolewski, PhD student at MIT <i>Research topic: Safe multi-agent control for autonomous field inspection robots Successful on-site demonstration for the GE Vernova field inspection project, co-authoring 1 CoRL '26 (Spotlight) and 1 IROS '26 workshop publications.</i>	2025–present
Dimitrios Georgiou, PhD student at Georgia Tech <i>Research topic: Entropy-regularized trajectory optimization Resulted in 1 ICRA '27 submission.</i>	Spr–Sum 2026

Arshiya Taj Abdul, MS/Junior PhD student at Georgia Tech <i>Research topic: Distributed robust optimization for multi-agent control under uncertainty</i> <i>Resulted in 1 ACC '25, 1 CDC '25 and 1 TAC (under review) publications.</i>	2023–2025
Panagiotis Theodoropoulos, Junior PhD student at Georgia Tech <i>Research topic: Stochastic optimal control and generative AI</i> <i>Resulted in 1 ICLR '24 and 1 NeurIPS '25 publications.</i>	2023–2025
Akash Ratheesh, Junior PhD student at Georgia Tech <i>Research topic: Operator splitting covariance steering for safe stochastic nonlinear control</i> <i>Resulted in 1 CDC '25 publication.</i>	2024–2025
Taehyun Yoon, Junior PhD student at Georgia Tech <i>Research topic: Distributed trajectory optimization for multi-agent systems</i>	2024–2025

Undergraduate Students

Dami Thomas, UROP (Undergraduate Research Opportunities Program) at MIT <i>Research topic: Safe multi-agent control for autonomous field inspection robots</i>	Fall 2025
Hunter Kuperman, BS student at Georgia Tech <i>Research topic: Learning-to-optimize for quadratic programming</i>	Spr–Fall 2024

SERVICE

Workshop Organization

ICRA 2027 Workshop on “Safe World Models for Robotics: Assurance at the Prediction-Action Interface”, co-organizer. Proposal under review.

Reviewer

Journals: T-RO, IJRR, TAC, TCNS, RA-L, L-CSS, IJRN, TSMC.

Conferences: RSS, ICRA, IROS, ICLR, ICML, NeurIPS, L4DC, CDC, ACC, ECC, ICAR, IASEAI.

TECHNICAL SKILLS

Programming Languages: Python, C/C++, MATLAB

ML and Optimization: PyTorch, JAX, Scikit-learn, NumPy, CVX/CVXPY, MOSEK, Gurobi, IPOPT, OSQP

Robotics Software: ROS, Gazebo, MuJoCo, PyBullet, CARLA

Hardware Platforms: Unitree Go2 quadruped, Crazyflie quadrotors

LANGUAGES

English (Fluent), Greek (Native), French (Advanced)

REFERENCES

Prof. Evangelos A. Theodorou

PhD Advisor

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Atlanta, GA, USA

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Prof. Chuchu Fan

Postdoctoral Advisor

Department of Aeronautics and Astronautics

Massachusetts Institute of Technology

Cambridge, MA, USA

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Prof. Arkadi S. Nemirovski

PhD Committee Member

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Atlanta, GA, USA

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Prof. Yao Xie

PhD Committee Member

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Prof. Efstathios Bakolas

PhD Committee Member

Aerospace Engineering and Engineering Mechanics
University of Texas at Austin
Austin, TX, USA

 [Website](#) |  [Google Scholar](#)

 bakolas@austin.utexas.edu

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Dr. Wan-Yi Lin

Research Manager

BOSCH Center for Artificial Intelligence
Pittsburgh, PA

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