

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
2025

Ph.D. in Machine Learning

Thesis: Distributed Optimization Architectures for Large-Scale Decision Making

Advisor: Evangelos A. Theodorou

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

Onassis Foundation Doctoral Fellow, 2021–2025

Georgia Institute of Technology

Atlanta, GA
2024

M.Sc. in Aerospace Engineering

University of Patras

Patras, Greece
2019

Diploma in Electrical and Computer Engineering

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
Aug 2025–present

Postdoctoral Associate

Supervisor: Chuchu Fan

Focus: Generative AI for optimization, decision-making and autonomy

Selected outcomes: ICML '26 Spotlight (top 2%), CoRL '26 Spotlight (top 3%); lead proposal author on two awarded industry-sponsored projects totaling \$370K.

BOSCH Center for Artificial Intelligence

Pittsburgh, PA
May–Aug 2023

Machine Learning Research Intern

Supervisor: Wan-Yi Lin

Focus: Collaborative learning via model alignment

Outcome: 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: Lead 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: Lead proposal author; PI: Chuchu Fan
- [S1] Autonomous Field Inspection with Physical AI 2025–2026
GE Vernova
Period: Oct 2025–Sep 2026
Role: Research 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 course coordinator. 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 into 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 into 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</i> <i>Resulted into 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 into 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 into 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 into 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, IJRNC, TSMC.

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

TECHNICAL SKILLS

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

Packages: PyTorch, JAX, Scikit-learn, NumPy, CVX/CVXPY, MOSEK, Gurobi

LANGUAGES

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

REFERENCES

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Prof. Chuchu Fan

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Prof. Yao Xie

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PhD Committee Member

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Dr. Wan-Yi Lin

Research Manager

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Pittsburgh, PA

 Google Scholar

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