ASTGHIK HAKOBYAN

1, Gwanak-ro, Gwanak-gu, Bldg. 133, #313
Seoul, 08826, South Korea
☎ *astghikhakobyan@snu.ac.kr*
⌂ *astghikhakobyan.github.io*

Education

2021 – 2023 (Expected)	**Ph.D.**, *Seoul National University*, Seoul, Korea.
	Major: Electrical and Computer Engineering
	Research Interest: Motion Control, Safe Autonomy, Optimization
	Thesis: Wasserstein Distributionally Robust Control and Optimization for Autonomous Systems
	Advisor: Prof. Insoon Yang
2018 – 2020	**M.S.**, *Seoul National University*, Seoul, Korea.
	Major: Electrical and Computer Engineering
	Research Interest: Motion Control, Safe Autonomy, Optimization
	Thesis: Risk-Aware Distributionally Robust Optimization for Learning-Based Autonomous System (Distinguished ECE M.S. Dissertation Award)
	Advisor: Prof. Insoon Yang
2015 – 2018	**B.S.**, *National Polytechnic University of Armenia*, Yerevan, Armenia.
	Major: Automation and Control
	Research Interest: Control of Robotic Systems
	Final Project: Design and Analysis of SISO/MIMO Hydraulic Control Systems
	Advisor: Prof. Azatuhi Ulikyan

Academic & Professional Experience

2019 – 2022	**Teaching Assistant**, *Seoul National University*, Seoul, Korea.
	○ 430.456: Advanced Control Techniques (2022 Fall, 2021 Fall) 430.310: Feedback Control Systems (2019 Fall) 430.452A: Introduction to Robotics and Autonomous Systems (2019 Spring)
2020 – 2021	**Researcher**, *Automation and Systems Control Research Institute, Seoul National University*, Seoul, South Korea.
2017 – 2018	**Application Engineer**, *National Instruments AM LLC*, Yerevan, Armenia.
2015 – 2016	**Data Integration Specialist**, *National Instruments AM LLC*, Yerevan, Armenia.

Other Activities

2022 – now **Fellow** at the Armenian Society of Fellows (ASOF)

2021 – now **Chairman** of the AGBU Young Professionals Group Korea (YP Korea)

2018 – now **Reviewer for Conferences and Journals:** IROS, ICRA, RA-L, CDC, T-RO, TAC, TSMC, ACC, AI, etc.

Selected Publications

[1] A. Hakobyan and I. Yang, "Distributionally robust differential dynamic programming with Wasserstein distance," *IEEE Control Systems Letters (L-CSS)*, 2023.

[2] J. Nadales, A. Hakobyan, D. Muñoz de la Peña, D. Limon, and I. Yang, "Risk-aware Wasserstein distributionally robust control of vessels in natural waterways," *IEEE Transactions on Control Systems Technology (TCST)*, 2023 (*submitted*).

[3] A. Hakobyan and I. Yang, "Wasserstein distributionally robust control of partially observable linear stochastic systems," *IEEE Transactions on Automatic Control (TAC)*, 2023 (*submitted*).

[4] A. Hakobyan and I. Yang, "Distributionally robust optimization with unscented transform for learning-based motion control in dynamic environments," in *IEEE International Conference on Robotics and Automation (ICRA)*, 2023.

[5] A. Hakobyan and I. Yang, "Distributionally robust risk map for learning-based motion planning and control: A semidefinite programming approach," *IEEE Transactions on Robotics (T-RO)*, 2022.

[6] A. Hakobyan and I. Yang, "Wasserstein distributionally robust control of partially observable linear systems: Tractable approximation and performance guarantee," in *IEEE Conference on Decision and Control (CDC)*, 2022, pp. 4800–4807.

[7] J. Shin, A. Hakobyan, M. Park, Y. Kim, G. Kim, and I. Yang, "Infusing model predictive control into meta-reinforcement learning for mobile robots in dynamic environments," *IEEE Robotics and Automation Letters (RA-L)*, pp. 1–8, 2022.

[8] A. Hakobyan and I. Yang, "Toward improving the distributional robustness of risk-aware controllers in learning-enabled environments," in *IEEE Conference on Decision and Control (CDC)*, 2021, pp. 6024–6031.

[9] A. Hakobyan and I. Yang, "Wasserstein distributionally robust motion control for collision avoidance using conditional value-at-risk," *IEEE Transactions on Robotics (T-RO)*, vol. 38, no. 2, pp. 939–957, 2021.

[10] A. Hakobyan and I. Yang, "Learning-based distributionally robust motion control with Gaussian processes," in *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2020, pp. 7667–7674.

[11] A. Hakobyan and I. Yang, "Wasserstein distributionally robust motion planning and control with safety constraints using conditional value-at-risk," in *IEEE International Conference on Robotics and Automation (ICRA)*, 2020, pp. 490–496.

[12] A. Hakobyan, G. C. Kim, and I. Yang, "Risk-aware motion planning and control using CVaR-constrained optimization," *IEEE Robotics and Automation Letters (RA-L)*, vol. 4, no. 4, pp. 3924–3931, 2019.

Languages

Armenian	**Native**
Russian	**Fluent**
English	**Fluent (TOEFL iBT 107)**
Korean	**Fluent (TOPIK 6)**
Chinese	**Moderate (HSK 3)**

Honors & Awards

2022 Spring-Fall	**SNU Global Scholarship (GS)**
2021 Fall	**Tuition Scholarship from the SNU Development Fund**
2021 Spring	**SNU Global Scholarship (GS)**
2020	**Distinguished ECE M.S. Dissertation Award (2020)**
2018 – 2020	**Korean Government Scholarship Program (KGSP)**
2015 – 2018	**Armenian Government Academic Scholarship for Excellence**
2016	**Knights of Vartan Avak Tahlij Scholarship Award**