Jihoon Hong

+1-470-667-7557 | jhong392@gatech.edu | https://athlon76.github.io/
Jihoon Hong | athlon76
Atlanta, GA

Research Interests

Uncertainty-aware computer vision techniques and control-theoretic tools for robust, reliable, and safe learning-enabled robotic systems, with applications in safe navigation and constrained generation.

Education

- **Georgia Institute of Technology** — *Aug. 2024 - Expected Aug. 2029*
  Ph.D., Machine Learning — Atlanta, GA
- **Seoul National University** — *Mar. 2017 - Feb. 2024*
  B.A., Economics & B.S., Computer Science and Engineering — Seoul, Korea
  - *Summa Cum Laude* (GPA: 3.93/4.0)
  - Minor in Mathematics

Research Experience

- **Verifiable Optimization for Imaging and Learning Advances (VOILA) Lab** — *May 2025 - Present*
  Advised by Dr. Sara Fridovich-Keil — Atlanta, GA
  - Developing uncertainty quantification and out-of-distribution detection methods using diffusion priors.
- **Trustworthy Robotics Lab** — *May 2025 - Present*
  Advised by Dr. Glen Chou — Atlanta, GA
  - Improving robustness and performance of world/action models via control-theoretic analysis and intervention.

Publications

C=Conference, J=Journal, U=Under Review

** denotes equal contribution.*

[J.1] J. Hong, C. Chiu, S. Fridovich-Keil, G. Chou. (2026). **PolyMerge: Compressing 3D Gaussian Splats with Polytope Coverings for Provably Safe Resource-Constrained Navigation**. *IEEE Robotics and Automation Letters (RA-L)*. DOI: 10.1109/LRA.2026.3692083

[C.3] A. Kheirandish*, J. Hong*, S. Fridovich-Keil. (2026). **KLIP: localized distribution shift detection via KL-divergence with diffusion priors in Inverse Problems**. *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2026*.

[C.2] S. Lee, H. Lee, J. Hong, S. Cho, J. Lee. (2024). **VGA: Hardware Accelerator for Scalable Long Sequence Model**. 57^{th} *International Symposium on Microarchitecture (MICRO)*.

[C.1] H. Lee, J. Hong, S. Kim, S. Lee, J. Lee. (2023). **A Memory-Efficient Edge Inference Accelerator with XOR-based Model Compression**. 60^{th} *Design Automation Conference (DAC)*.

[U.3] J. Hong, J. Skifstad, Q. Dai, A. Chan, G. Chou. (2026). **Steering Robustness into World Action Models via Mechanistic Interpretability and Optimal Control**. Manuscript submitted to the *Conference on Robot Learning (CoRL)*.

[U.2] J. Hong, A. Chan, Q. Dai, J. Skifstad, G. Chou. (2026). **Activation Steering of Video Generation Models via Reduced-Order Linear Optimal Control**. Manuscript submitted to the 40^{th} *Annual Conference on Neural Information Processing Systems (NeurIPS)*.

[U.1] J. Hong*, A. Kheirandish*, S. Fridovich-Keil. (2026). **LACToS: Local Anomaly detection via Conditional Typicality of Superpixels**. Manuscript submitted to the 40^{th} *Annual Conference on Neural Information Processing Systems (NeurIPS)*.

Honors and Awards

- **Kwanjeong Educational Foundation (KEF) Scholarship** — *Sep. 2024 – Aug. 2029*