JIWOONG (ALEX) CHOI

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EDUCATION

The University of Texas at Austin, Austin, TX | Class of 2026
B.S. in **Computational Engineering** | GPA 3.7 / 4.0

Relevant Coursework: Introduction to Machine Learning and Data Sciences, Linear System Analysis, Dynamics, Electromechanical Systems, Engineering Probability and Statistics, Topics in Advanced Scientific Computations

PUBLICATIONS

Jiwoong Choi, Haoyu Li, and Yiwei Lyu. **"Back to the Future: Predicting Long-Horizon Dynamics with Retrospective Correction for Disturbance-Aware Retrieval."** *Submitted to the IEEE International Conference on Robotics and Automation (ICRA) 2027, under review.* Project page: the-back-to-the-future.github.io

EXPERIENCE

Mandatory Military Service, *Air Force, Republic of Korea* 01/2027 – 07/2028 (expected)

Robot Learning Researcher, *Texas A&M University*, College Station, TX 05/2026 – present
Robotics Lab | Advisor: Dr. Yiwei Lyu

- Led DARE, a geometry-aware relational dynamics framework for retrieving objects from densely packed storage where limited clearance prevents lifting the target over clutter.
- Designed an object-level GNN world model that predicts action-conditioned disturbance, using a 20,000-episode MuJoCo cabinet dataset with RoboCasa objects.
- Developed a learned self-corrector that amends an earlier predicted state from a sparse observation and reruns the dynamics, raising noisy 10-object retrieval success from 0% to 80–100%.
- Built a closed-loop model predictive path integral (MPPI) planner that succeeded in 90–100% of 20-object cabinet scenes with clean observations, versus 10–20% for direct-retrieval and collision-avoidance baselines.

Computational Physics Researcher, *The University of Texas at Austin*, Austin, TX 10/2025 – present
Oden Institute | Advisor: Dr. Chad Landis

- Develop a JAX isogeometric bubble-cavitation solver with optimal $O(h^4)$ convergence, toward a first-author paper.
- Design a fully adaptive mesh that refines and coarsens with the moving interface, projected to cut 166-hour runs to 25 hours.
- Formulate self-stopping refinement thresholds from the interface density jump, replacing the per-problem hand-tuning common in published methods.

Application Development Engineering Intern, *KLA Corporation*, Austin, TX 05/2024 – 12/2024, 05/2025 – 08/2025

- Adapted and refactored normalized spatial uncertainty (NSU) code into Python for KLA's 5D Analyzer, as part of a team metrology-targeting pipeline that cut runtime 33% over the grid-based approach.
- Visualized NSU across the die with gradients that auto-scale to chosen criteria, removing manual color and scale setup.
- Engineered an all-in-one data input node for KLA's 5D Analyzer that replaced 15+ per-type input nodes and centralized data management for entire workflows.

PROJECTS

Foam-Core Spacecraft Sandwich Panel, *Senior Design with Southwest Research Institute (SwRI)* 09/2025 – 04/2026

- Led engineering for a 9-person team designing a CubeSat-class panel that carries loads, isolates heat and shields radiation.
- Directed the team's Ansys Mechanical vibration and thermal simulations and validated them against SwRI test results.
- Verified the design at SwRI, where the panel passed 14.1 g RMS random vibration on all three axes and survived thermal cycling from −40 °C to +61 °C with no damage.

HONORS AND AWARDS

- David & Sandra Dotter Friends of Alec Endowed Scholarship in Engineering, Cockrell School of Engineering, 2024 – 2025

SKILLS

Programming: Python, MATLAB, C++
Machine Learning: PyTorch, JAX, scikit-learn
Simulation: MuJoCo, RoboCasa, Ansys Mechanical, OpenFOAM, ParaView
Compute and Tools: Slurm, Git, LaTeX
Languages: English (native), Korean (native)