Iskander Dyussenov

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EDUCATION

Georgia Institute of Technology, Atlanta, GA August 2024 – May 2028
Bachelor of Science in Mechanical Engineering; GPA: 3.91

EXPERIENCE

Machine Learning Research Assistant, **The Exoskeleton and Prosthetic Intelligent Controls Lab** August 2025 – Present

- Led the team's deep learning project, implementing and validating a U-Net neural network that allows using simulated time series sensor data to train the bionic prosthesis's task-agnostic end-to-end controller via PyTorch.
- Collected Motion Capture biomechanical data and performed post-processing via MATLAB and OpenSim, leveraging Inverse Kinematics and Inverse Dynamics to generate simulated sensor data.

Mechanical Engineering Intern, **AVZ,** Almaty, Kazakhstan June 2026 – Present

- Decreased assembly time per unit by 15% by designing detachable vacuum gripping and welding End-of-Arm tooling for an industrial 6-DOF robotic arm.
- Increased assembly robustness to manufacturing defects in the 5 mm range by 80% by deploying an error estimation computer vision algorithm using OpenCV and integrating it with the robot arm's controller.

Manufacturing Team Member, **Georgia Tech Off Road,** Atlanta, Georgia February 2025 – May 2026

- Manufactured 10+ CNC-milled, turned, and welded components for suspension, chassis, and drivetrain assemblies.
- Designed the accumulator shell for hot-switching the accumulator during the Baja SAE competition.

PROJECTS

Deep Learning-Driven State Estimation for Nonlinear Systems May 2026 – Present

- Implemented an ESKF-based attitude estimation pipeline on an ESP32, fusing accelerometer and gyroscope measurements to estimate the 3D orientation via quaternion kinematics.
- Developed a multi-channel TCN to perform IMU-to-attitude mapping from ESKF-generated training data and evaluated its orientation estimation accuracy against the filter baseline.
- Deployed the TCN on ESP32 using ESP-DL by quantizing the model to optimize for memory, latency, and compute constraints of the embedded system.

ME 2110 Competition Robot January 2026 – May 2026

- Designed, fabricated, and validated a competition robot with closed-loop control architecture, under strict spatial and budget constraints.
- Implemented a PID controller to improve system robustness against mechanical disturbances and competition track imperfections, increasing the average validation score by 292% (from 25 to 98).

LEADERSHIP

President, **Georgia Tech Central Asian Student Association,** Atlanta, Georgia March 2025 – December 2025

- Founded the university's first Central Asian Student Association.
- Organized 3 community events with over 100 cumulative participants from 5 Central Asian countries.

SKILLS

Technical: CAD (SolidWorks), CAM (Autodesk Fusion), ROS2, C++, MATLAB, Python, OpenSim, Design for Manufacturing, 3D printing, TIG welding, Embedded Systems.
Languages: English (advanced), Kazakh (native), Russian (native).