

Talha Zaidi

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SUMMARY

- Ph.D. researcher in Robot Learning, Reinforcement Learning, Embodied AI, and Autonomous Systems.
- Experienced in generative policies, diffusion models, imitation learning, latent skills, and VLA models.
- Hands-on with ROS 2, robotics, industrial automation & controls, along with PyTorch & scalable ML experiments.
- Published in leading AI and robotics venues, bridging learning algorithms, simulation, and physical systems.

PROFESSIONAL EXPERIENCE

ISCAAS Lab, Kansas State University [\[link\]](#)

Aug 2021–Aug 2026

Doctoral Researcher

Research Focus: Developing reinforcement learning, generative modeling, and representation learning methods for embodied AI, long-horizon robotic decision-making, and autonomous systems.

- Generative Decision Models (**GRALP, CRISP**). Developed sequence-decision and latent-skill planning frameworks for long-horizon decision-making under partial observability; improved performance by ~8% on D4RL, Adroit, and RoboSuite benchmarks, with work accepted at **IJCAI 2026** and **IROS 2026**.
- Developed attention-based reinforcement learning methods for long-horizon sequential optimization in a NASA-funded autonomy project; reduced transfer time by **10%** versus strong baselines (**IEEE Transactions**).
- Developed and tested a **ROS 2-based teleoperation** interface in Unreal Engine for real SCUTTLE and LIMO mobile robots, integrating multi-robot control with their digital-twin environments.
- Evaluated RL, **imitation learning**, and generative policy methods across simulation benchmarks, analyzing robustness, distribution shift, and policy adaptation.
- Designed an AI-driven control and anomaly-detection framework for cyber-physical systems, improving attack detection and system recovery in MATLAB/Simulink and PyTorch simulations (DOE-funded).

Neuroprosthetics Research Group (NRG) [\[link\]](#)

Oct 2018–Dec 2020

Research Engineer - Neural Control & Robotics

- Built a closed-loop brain-robot interface that translated motor-cortex neural activity into real-time robotic-arm control through ROS 2.
- Developed an online neural decoding pipeline with signal processing, spike detection and sorting, firing-rate estimation, and motion command generation.
- Integrated neural decoder with ROS 2 and `ros2_control` for joint-space velocity control and real-time robot feedback.
- Evaluated the system in target-reaching experiments, where neural activity continuously guided the physical robot toward task goals.

TetraPak [\[link\]](#)

Apr 2016–Jun 2018

Automation and Control Engineer

- Worked hands-on with complex automated machinery, integrating Allen-Bradley PLC controls, sensors, instrumentation, and electromechanical hardware.
- Troubleshoot hardware and control-system failures in production, isolating issues across PLCs, sensors, electrical systems, and machine components.
- Served as project engineer for the installation and commissioning of high-speed automated systems, supporting system bring-up, testing, and production deployment.
- Performed root-cause analysis and preventive maintenance to improve system reliability and minimize downtime.

Tera Generation Solutions [\[link\]](#)

Apr 2015–Mar 2016

Automation Systems Engineer

- Integrated and commissioned HDL and TIS home/building automation systems, connecting controllers, sensors, lighting, and other field devices across residential and commercial projects.
- Configured automation logic and troubleshoot distributed control hardware, validating end-to-end sensor to actuator operation during system deployment.

PROFESSIONAL SKILLS

RL & Decision-Making: Offline/online RL, imitation learning, policy optimization/refinement, long-horizon planning

Generative & Representation Learning: Diffusion models, VAEs, latent skills, sequence modeling, world models.

Foundation Models: Vision-language models, VLA models, LoRA/PEFT, preference-based fine-tuning, RLHF/GRPO

Embodied AI & Robotics: ROS 2, Unreal Engine, `ros2_control`, MuJoCo, MoveIt, RoboSuite, D4RL/Adroit, Isaac Sim.

Programming & ML Systems: PyTorch, Python, C++, Linux, GPU training, MATLAB/Simulink

EDUCATION

Kansas State University

Aug 2021–Aug 2026

PhD Candidate in Computer Science | GPA: 3.9/4.00

Advisor: Dr. Arslan Munir ([link](#))

Research Focus: Reinforcement Learning, Robot Learning, Embodied AI and Generative Models.

Istanbul Medipol University

Sep 2018–Dec 2020

M.S. in Biomedical Engineering | GPA: 3.7/4.00

Research Focus: Robotics, Brain-Robot Interfaces, AI-based Control

University of Engineering and Technology, Lahore

Sep 2010–Aug 2014

B.S. in Mechatronics and Control Engineering | GPA: 3.3/4

Research Focus: Robotics

SELECTED PUBLICATIONS

1. Zaidi, S. M. Talha, *et al.* "GRALP: Generative Representation for Action Refinement and Latent Planning in offline Reinforcement Learning." Proceedings of the International Joint Conference on Artificial Intelligence (**IJCAI**), 2026.
2. Zaidi, S. M. Talha, *et al.* "CRISP: Context-Robust Inpainting for Long-Horizon Skill Planning under Partial Observability in Offline Reinforcement Learning" in Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (**IROS**), 2026.
3. Zaidi, Syed, Lior Shamir, William Hsu, Scott Dietrich, and Talha Zaidi. "GRAZE: Grounded Refinement and Motion-Aware Zero-Shot Event Localization." In Proceedings of the IEEE/CVF CVSports at Conference on Computer Vision and Pattern Recognition (CVPR), pp. 10087-10095. 2026.
4. Zaidi, S. M. Talha, *et al.* "Single-Agent Attention Actor-Critic: A Deep Reinforcement Learning-Based Solution for Low-Thrust Spacecraft Trajectory Optimization." *IEEE Transactions on Aerospace and Electronic Systems* (2025).
5. Khan, Muhammad Haris, Talha Zaidi, Salman Khan, and Fahad Shahbaz Khan. "Mode-Guided Feature Augmentation for Domain Generalization." In *BMVC*, p. 176. 2021.

TECHNICAL LEADERSHIP AND PROFESSIONAL SERVICE

Technical Leadership

- Served as Project Engineer for the installation, system bring-up, and production deployment of a high-speed automated manufacturing system at Tetra Pak.
- Led an engineering team integrating and deploying distributed control, sensing, and automation systems across residential and commercial projects.

Selected Professional Service

- Invited reviewer for IEEE Transactions on Aerospace and Electronic Systems, IEEE Transactions on Cloud Computing, and IEEE Access.

University Leadership

- President, Graduate Students Association, Department of Computer Science, Kansas State University (2023–2024); led student initiatives and coordinated technical seminars with academic and industry speakers.
- President, Mechatronics Club Society, UET Lahore (2013–2014); founded and led ROBOCOM, an inter-university robotics competition, and secured university and corporate sponsorship.

AWARDS

- Kansas State University, [Excellence in Research Award](#) - June 2026.
- Kansas State University, Department of Computer Science, [Outstanding Research Award](#) - April 2026.
- Kansas State University, [Graduate student of the Month Award](#)- March 2026.
- Best Paper Presentation Award at IEEE Applied Power Electronics Conference and Exposition (APEC) 2026.
- Funded Ph.D. Scholarship & Research Assistantship, Kansas State University, 2021-Present .
- Funded Master's Scholarship & Research Assistantship, Istanbul Medipol University, 2018-2020.