Dr. Hannan Ejaz Keen

LinkedIn: linkedin.com/in/hannan-ejaz-keen
Github: github.com/HannanEjazKeen
Scholar: scholar.google.com/citations?user=36PbRYYAAAAJ&hl
Email: hannankeen@gmail.com
Website: hannanejazkeen.github.io
Mobile: +49-163-2131060
Nationality: German

Summary

AI and Perception Engineer with 8+ years of experience in computer vision, deep learning, sensor fusion, and autonomous robotics. Led large-scale research projects in smart cities and autonomous mobility systems, with hands-on deployment on embedded platforms. Passionate about developing real-time ML systems for self-driving vehicles and contributing to safety-critical mobility technologies.

Experience

Senior Researcher May 2024 - Present
Xitaso GmbH *Karlsruhe, Germany*

- Leading multi-million Euro research projects (VALISENS, ENGEL) for autonomous systems and smart cities.
- Mentored a team of 10 engineers in perception and AI; delivered cross-functional roadmap planning.
- Developed perception pipeline for multi-sensor object detection and tracking in urban driving scenarios.
- Deployed perception models on real-time platforms with automotive-grade compute (Jetson-based).
- Optimized models for latency and real-time performance using CUDA and TensorRT.
- Designed systems with safety-critical constraints for aerial mobility use cases.

Research Associate Sep 2019 - Feb 2024
Robotics Research Lab - RPTU Kaiserslautern-Landau *Kaiserslautern, Germany*

- Developed perception systems for autonomous off-road and urban vehicles using deep learning.
- Designed HMI for driverless bus to detect and react to vulnerable road users in campus settings.
- Conducted full ML lifecycle: data curation, training, evaluation, deployment.
- Led grant proposals securing 1M+ Euros in AI and robotics funding.
- Project Highlights:
  - **Autonomous Campus Bus -** Developed multi-modal fusion and perception stack with real-time detection.
  - **Nalamki -** Multispectral aerial data analysis for agricultural monitoring.
  - **Ponton Boot -** Designed deep learning systems for water surface navigation.
  - **JD Mapping -** Delivered elevation and terrain mapping with drones and land-based sensors.

Lecturer Associate Lecturer Feb 2014 - Jan 2024
University of Central Punjab *Lahore, Pakistan*

- Taught undergraduate and graduate-level courses in AI, robotics, and computer vision.
- Supervised thesis projects focused on reinforcement Leaning and unmanned systems.

Education

Ph.D. in Computer Science Feb 2018 - June 2024
RPTU Kaiserslautern Landau; Magna Cum Laude *Kaiserslautern, Germany*

- **Dissertation:** *Traversability Mapping in Flooded Environments Using Unmanned Surface Vehicles.*
- **Focus:** *Sensor Fusion, Deep Learning, Mapping, Generative AI.*

MS in Electrical Engineering Sep 2014 - June 2016
Lahore University of Management Sciences; Cgpa: 3.216 *Lahore, Pakistan*

- **Dissertation:** *Conflict Avoidance among multiple Unmanned Aircrafts using Reinforcement Learning.*
- **Relevant Courses:** *Robot Motion Planning, Stochastic Processes, Mobile Robotics.*

BSc in Electrical Engineering Sep 2009 - Oct 2013
University of Engineering and Technology, Pakistan; Cgpa: 3.26 *Lahore, Pakistan*

Technical Skills

ML & Perception	Object Detection, Classification, Multi-object Tracking, Segmentation, SLAM, Mapping, Generative AI
Frameworks	PyTorch, TensorFlow, OpenCV
Programming	Python, C++, Bash, MATLAB, ROS/ROS2, Git, Docker
Hardware	LiDAR, IMU, GNSS, Stereo & Thermal Cameras, Ground Penetrating Radar, Sonar, NVIDIA Jetson
Optimization Tools	CUDA, TensorRT (for runtime optimization and deployment)
Development	Agile, Scrum, MLOps, CI/CD, Confluence, Jira
Real-time Systems	RTOS (Linux-based), Embedded Linux (Jetson), Safety-critical systems
Soft Skills	Technical Mentorship, Cross-functional Collaboration, Code Reviews, Stakeholder Communication

Trainings and Certifications

- Agile Foundations - 2025
- Data Protection - 2024
- Basics Secure Software Development - 2024
- Understanding the Ground Penetrating Radar - 2022
- Drone Flight Training & License - 2020

Languages

English (Advanced), **Urdu** (Native), **German** (Intermediate)

Selected Publications

The Components of Collaborative Joint Perception and Prediction – A Conceptual Framework, 11th International Conference on Vehicle Technology and Intelligent Transport System VEHITS 2025 (Best Student Paper)

A Systematic Literature Review on Vehicular Collaborative Perception - A Computer Vision Perspective, IEEE Transactions on Intelligent Transportation Systems, (Submitted Publication 12.2024)

A LiDAR-Visual-Thermal Dataset Enabling Vulnerable Road User Focused Roadside Perception, International Conference on Computer Vision, ICCV 2025 (Submitted Publication)

Traversability Mapping for Safe Navigation in Flooded Environment, IEEE/RSJ International Conference on Robotics and Automation, ICRA 2023 (Late Breaking Results)

Denoising and Segmentation of SONAR Images for Rescue Operations, International Symposium on Robotics, ISR Europe 2023

Drive on Pedestrian Walk. TUK Campus Dataset, IEEE/RSJ International Conference on Intelligent Robots and Systems, IROS 2021

References

Shall be furnished upon request