

# Khurram Azeem Hashmi

✉ khurram.tukl@gmail.com    🔗 khurramhashmi.github.io    🌐 khurramHashmi    in khurramhashmi

## Education

- PhD in Computer Science** 2020 – Present  
RPTU Kaiserslautern-Landau, Germany  
*Thesis: Towards Spatial and Temporal Object Recognition in Diverse and Challenging Environments*  
Advisor: Prof. Dr. Didier Stricker
- M.Sc. Computer Science (Artificial Intelligence)** 2017 – 2020  
RPTU Kaiserslautern-Landau, Germany

## Work Experience

- German Research Center for Artificial Intelligence (DFKI)** Aug 2020 – Present  
*Computer Vision Engineer*
- Designed and deployed a **vision-guided, multimodal navigation** pipeline for autonomous assembly robots, including **3D perception and real-time obstacle avoidance**, achieving a precision of around 98%.
  - Fine-tuned foundation models (LLM, VLM) for open-world recognition frameworks** to enhance real-time perception and decision-making in unstructured environments, achieving a 40% improvement in response time.
  - Led research on **object detection, segmentation, and tracking under challenging conditions** in videos.
  - Developed computer vision-based anomaly detection solutions for European SMEs in manufacturing under the AIRISE project, ensuring compliance with industry safety standards and achieving a 70% reduction in manual inspection time.
  - Supervised Master's students in research on self-supervised, unsupervised, and multimodal learning.
- German Research Center for Artificial Intelligence (DFKI)** Dec 2018 – Apr 2020  
*Research Assistant*
- Designed a feedback learning system using Neural Machine Translation to correct information extraction errors in automated document processing for insurance companies, reducing post-processing errors by 20%.
  - Developed an optimized OCR pipeline for historical document analysis, integrating object detection and instance segmentation, achieving a 45% performance boost over traditional OCR methods.
  - Collaborated with German national archives and librarians to process and analyze historical documents, contributing to research projects on automated text recognition: Github Codebase.
- Techlogix** June 2016 – August 2017  
*Software Engineer*
- Developed enterprise-grade middleware solutions to integrate core banking systems with business process applications, enabling seamless interoperability for five financial institutions.
  - Engineered high-throughput financial transaction processing systems, utilizing IBM Integration Service Bus, IBM Message Queue, Java, ESQL, and SQL Server 2016, automating several financial services and making them digital for the first time, such as the EOBI pension system.

## Skills

**Programming:** Python, C++, CUDA, Java, SQL  
**Frameworks:** PyTorch, OpenCV, TensorFlow, Keras  
**Emerging Topics:** Multi-Modality, LLMs, VLMs, Self-Supervised Learning, RAG, Diffusion Models  
**DevOps:** Docker, Kubernetes, AWS, ROS2, Gazebo, TensorRT, ONNX, Slurm, Cluster Computing, Hugging Face TGI  
**Hardware/Sensors:** NVIDIA Jetson, RealSense RGB-D, Monocular Cameras, LiDAR, IMUs

## Selected Publications (Google Scholar)

- Sparse Semi-DETR: Sparse Learnable Queries for Semi-Supervised Object Detection** CVPR 2024  
Tahira Shehzadi, Khurram Azeem Hashmi, Didier Stricker, Muhammad Zeshan Afzal.
- FeatEnhancer: Enhancing Hierarchical Features for Object Detection in Low-Light Vision** ICCV 2023  
Khurram Azeem Hashmi, Goutham Kallempudi, Didier Stricker, Muhammad Zeshan Afzal.
- BoxMask: Revisiting Bounding Box Supervision for Video Object Detection** WACV 2023  
Khurram Azeem Hashmi, Alain Pagani, Didier Stricker, Muhammad Zeshan Afzal.

## Awards and Honors

- AI Newcomer Award Nomination** German Society of Computer Science, 2023  
**Merit-Based Scholarship** Full Bachelor's Funding, 2012 – 2016

## Academic Service

- Reviewer for major computer vision conferences, including CVPR, ICCV, ICLR, ECCV, and WACV.