DR. ASIF RAJPUT

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SUMMARY

Computer vision engineer with over 10 years specializing in multi-sensor fusion, deep learning and 3D reconstruction for robotic perception systems. Passionate about transforming advanced research into practical, real-world applications.

SKILLS

Programming: Python, C++
Frameworks: PyTorch, OpenCV, ROS, CUDA
Tools: Git, Docker, MongoDB, MLFlow, DvC

Sensor Systems Expertise: RGBD, Stereo and LiDAR.
Concepts: SLAM, Object Detection, 3D Reconstruction, Segmentation, Tracking, Multi-sensor Calibration

EXPERIENCE AND RESEARCH

Computer Vision Software Engineer | Organifarms

Mar 2024 – present — Konstanz, DE

- Proposed, designed, and implemented an end-to-end deep learning pipeline from model development to deployment on a robot resulting in a 45% reduction in fruit yield loss.
- Designed and deployed an environment-mapping system for robotic arms, significantly minimizing plant damage during autonomous navigation..

Senior AI Engineer (Remote) | Kodifly Limited

Mar 2023 – Mar 2024 — Islamabad, PK

- Developed and deployed a production-grade end-to-end ML pipeline that fuses LiDAR and video data for enhanced detection, integrated with AI-driven software to generate actionable insights for infrastructure maintenance.
- Implemented an in-house **AI-assisted** annotation system which increased the annotation speed to roughly **10x**.
- Led a cross-functional team of back-end, front-end, and AI engineers to drive sprint-based Agile development and ensure timely delivery of project milestones.

Senior Researcher Robotics | CRAIB-SIBA

Jun 2020 – Oct 2022 — Sukkur, PK

- Developed a device leveraging computer vision and deep learning to automate the digitization of handwritten documents and forms.
- Led a robotics team in designing and deploying a deep learning–powered surveillance system for real-time vehicle detection, tracking, speed analytics, and traffic flow management.

Assistant Professor and CV Researcher | NUST-SEECS

Feb 2019 – May 2020 — Islamabad, PK

PhD Researcher | German Aerospace Center (DLR) Berlin

Oct 2014 – Sep 2018 — Berlin, DE

- Design and Implementation of a generalized novel 3D reconstruction framework capable of handling various sensor devices (such as RGBD cameras, LiDAR and StereoVision).
- Developed and **patented** a decentralized system with tailor-made protocol to facilitate remote visualization of 3D reconstruction.

Lecturer Computer Science | SIBA University

Feb 2012 – Jun 2014 — Sukkur, PK

LANGUAGES

- English – Fluent
- German – Intermediate

EDUCATION

PhD in Electrical Engineering | **Technical University Berlin**

2014 – 2018 | Berlin, DE

Computer Vision and 3D reconstruction

M.Sc in Computer Engineering | **NUST University**

2009 – 2011 | Islamabad, PK

Major: Digital Image Processing

B.S. in Computer Systems Engg. | **QUEST University**

2004 – 2009 | Nawabshah, PK

Major: Embedded Systems and Robotics

SELECTED PUBLICATIONS

Patents

- A. Rajput and A. Boerner, "Method and arrangement for selecting a color model conversion for an image compression (wo2020160991), in german and u.s. patent office," 2018.

Journal Articles

- R. Hassan, M. Fraz, A. Rajput, and M. Shahzad, "Residual learning with annularly convolutional neural networks for classification and segmentation of 3d point clouds," *Neurocomputing*, 2023.
- S. Hassan, G. Mujtaba, A. Rajput, and N. Fatima, "Multi-object tracking: A systematic literature review," *Multimedia Tools and Applications*, Oct. 2023, ISSN: 1573-7721. DOI: 10.1007/s11042-023-17297-3.
- F. Qureshi, A. Rajput, G. Mujtaba, and N. Fatima, "A novel offline handwritten text recognition technique to convert ruled-line text into digital text through deep neural networks," *Multimedia Tools and Applications*, pp. 1–27, 2022.
- F. Akhtar, J. Li, Y. Pei, *et al.*, "Diagnosis and prediction of large-for-gestational-age fetus using the stacked generalization method," *Applied Sciences*, vol. 9, no. 20, p. 4317, 2019.
- M. K. Ali, A. Rajput, M. Shahzad, F. Khan, F. Akhtar, and A. Boerner, "Multi-sensor depth fusion framework for real-time 3d reconstruction," *IEEE Access*, vol. 7, pp. 136 471–136 480, 2019. DOI: 10.1109/access.2019.2942375.
- A. Rajput, E. Funk, A. Börner, and O. Hellwich, "A regularized volumetric fusion framework for large-scale 3d reconstruction," *ISPRS Journal of Photogrammetry and Remote Sensing*, vol. 141, pp. 124–136, 2018.

Full publication list can be found at: 0000-0002-0157-129X