Khurram Azeem Hashmi

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Education

2020–present **PhD in Computer Science**, *RPTU Kaiserlautern-Landau*, Germany.
Thesis Title: Instance Representation Learning in Videos and Challenging Environments
Advisor: Didier Stricker

2017–2020 : **Masters in Computer Science, Intelligent Systems**, *RPTU Kaiserlautern-Landau*, Germany.
Thesis Title: DTNet: Deep Neural Networks for Table Detection and Structure Interpretation in Document Images
Advisor: Didier Stricker

2012–2016 : **Bachelor in Computer Science**, *National University of Computer and Emerging Sciences FAST*, Karachi, Pakistan.
Thesis Title: Short Story Generator with Recurrent Neural Networks
Advisor: Asim Wagan

Selected Publications

2023 **Khurram Azeem Hashmi**, Goutham Kallempudi, Didier Stricker, and Muhammad Zeshan Afzal. Featenhancer: Enhancing hierarchical features for object detection and beyond under low-light vision. In *Proceedings of the IEEE/CVF International Conference on Computer Vision,* ***ICCV 2023***, pages 6725–6735, 2023.

2023 **Khurram Azeem Hashmi**, Alain Pagani, Didier Stricker, and Muhammad Zeshan Afzal. Boxmask: Revisiting bounding box supervision for video object detection. In *Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision,* ***WACV 2023***, pages 2030–2040, 2023.

2022 **Khurram Azeem Hashmi**, Didier Stricker, and Muhammad Zeshan Afzal. Spatio-temporal learnable proposals for end-to-end video object detection. In *33rd British Machine Vision Conference 2022,* ***BMVC 2022****, London, UK, November 21-24, 2022*. BMVA Press, 2022.

2022 **Khurram Azeem Hashmi**, Alain Pagani, Marcus Liwicki, Didier Stricker, and Muhammad Zeshan Afzal. Exploiting concepts of instance segmentation to boost detection in challenging environments. ***Sensors***, volume 22, page 3703. MDPI, 2022.

2022 Shishir Muralidhara*, **Khurram Azeem Hashmi***, Alain Pagani, Marcus Liwicki, Didier Stricker, and Muhammad Zeshan Afzal. Attention-guided disentangled feature aggregation for video object detection. ***Sensors***, volume 22, page 8583. MDPI, 2022.

2021 **Khurram Azeem Hashmi**, Didier Stricker, Marcus Liwicki, Muhammad Noman Afzal, and Muhammad Zeshan Afzal. Guided table structure recognition through anchor optimization. ***IEEE Access***, volume 9, pages 113521–113534. IEEE, 2021.

2021 **Khurram Azeem Hashmi**, Alain Pagani, Marcus Liwicki, Didier Stricker, and Muhammad Zeshan Afzal. Castabdetectors: Cascade network for table detection in document images with recursive feature pyramid and switchable atrous convolution. ***Journal of Imaging***, volume 7, page 214. MDPI, 2021.

2021 **Khurram Azeem Hashmi**, Marcus Liwicki, Didier Stricker, Muhammad Adnan Afzal, Muhammad Ahtsham Afzal, and Muhammad Zeshan Afzal. Current status and performance analysis of table recognition in document images with deep neural networks. ***IEEE Access***, volume 9, pages 87663–87685, 2021.

2021 Danish Nazir*, **Khurram Azeem Hashmi***, Alain Pagani, Marcus Liwicki, Didier Stricker, and Muhammad Zeshan Afzal. Hybridtabnet: Towards better table detection in scanned document images. ***Applied Sciences***, volume 11, page 8396. MDPI, 2021.

2021 Shashank Mishra*, **Khurram Azeem Hashmi***, Alain Pagani, Marcus Liwicki, Didier Stricker, and Muhammad Zeshan Afzal. Towards robust object detection in floor plan images: A data augmentation approach. ***Applied Sciences***, volume 11, page 11174. MDPI, 2021.

2021 Muhammad Ahmed*, **Khurram Azeem Hashmi***, Alain Pagani, Marcus Liwicki, Didier Stricker, and Muhammad Zeshan Afzal. Survey and performance analysis of deep learning based object detection in challenging environments. ***Sensors***, volume 21, page 5116. MDPI, 2021.

Experience

German Research Center for Artificial Intelligence, DFKI

August 2020 – Present ***Researcher***.

- Develop energy-efficient autonomous navigation systems for assembly robots.
- Build AI services for industrial manufacturing, focusing on defect detection and safety standards.
- Provide training to small and medium-sized enterprises on training, deploying, and using AI models.
- Co-tutor the Masters course in Deep Learning at RPTU Kaiserslautern-Landau.
- Supervise Masters students for Thesis, Projects, and Seminars.

December 2018 – April 2020 ***Research Assistant***.

- Developed concepts of Feedback Learning using Neural Machine Translation (NMT) to address post-Information Extraction (IE) errors in digital mailroom systems.
- Built an efficient OCR pipeline for historical documents.
- Implemented block segmentation in historical documents using object detection and Instance Segmentation Networks.
- Collaborated with German Librarians to extract and analyze information from historical documents.

Techlogix

June 2016 – August 2017 ***Software Engineer***.

- Developed integration services between core banking systems and business process applications.
- Contributed to the development of middleware for heterogeneous systems used by major banks in Pakistan and Saudi Arabia.
- Responsible for creating predictive analyses based on client data.
- Utilized a range of tools and technologies, including IBM Integration Service Bus, IBM Message Queue, JAVA, XML, ESQL, XPath, IBM DB2, Teradata, SQL Server 2016, and Oracle 12C.

Fellowships & Awards

2012 –2016 ***Merit-based Scholarship*** for the entire bachelors studies based on the achieved GPA.

2023 Nominated for an ***AI New Commer Award*** by the German Society of Computer Science.

Academic Achievements

* **Reviewer** for major computer vision conferences, including **CVPR2024**, **WACV2023**, **ECCV2022**, **BMVC2022**, **ICDAR2023**.
* **Reviewer** for Journals, including **IEEE Transactions on Circuits and Systems for Video Technology (TCSVT)**, **IEEE Access**, **Neurocomputing.**

Technical Competence

Programming Languages	Python, C++, C, C#, Java, XML, ESQL, PHP, JavaScript
Frameworks	PyTorch, Tenserflow, Keras, Scikit-learn, Caffe, Pandas, Elastic Search, Kibana, Laravel, Spring
Deployments and OS	Docker, Slurm, WebSphere, Kubernetes, Linux
Tools	GIT, SVN, Gitlab, IBM Integration Bus, Anaconda, Spyder, PyCharm, Visual Studio, Eclipse, Netbeans, IBM Message Queue
Databases	IBM DB2, MongoDB, MSSQL, Oracle, SQL Server 2016, PLSQL, Tera Data

Invited Talks

* Self-Supervised Learning in Computer Vision – Augmented Vision Workshop 2023
* Instance Representation learning in Low-light Environments – All Hands Meeting & AI Symposium 2023