Khurram Azeem Hashmi

Home : Richard Wagner Straße 27, 67655, Kaiserslautern, Germany

Email: khurram_azeem.hashmi@dfki.de **Phone:** (+49) 017645746114

Website: https://av.dfki.de/members/hashmi/

Website: https://github.com/khurramHashmi

LinkedIn: https://www.linkedin.com/in/khurramhashmi/

Gender: Male **Date of birth:** 13/03/1994 **Nationality:** Pakistani

EDUCATION AND TRAINING

[01/08/2020 – Current]

Ph.D. Candidate in Computer Science (Object Detection in Videos and Challenging Environments)

University of Kaiserslautern-Landau (RPTU)

Address: 67663, Kaiserslautern, Germany

[01/10/2017 – 30/05/2020]

Master of Science, Computer Science (Artificial Intelligence)

Technical University of Kaiserslautern

Address: Kaiserslautern, Germany
Studied Courses in Specialization:
- Very Deep Learning: 1.0
- Multimedia Data Mining: 1.3
- Applications of Artificial Intelligence: 1.0
- Document Content Analysis: 1.7
- Embedded Intelligence: 1.0

[01/08/2012 – 30/05/2016]

Bachelor of Science, Computer Science

• National University of Computer & Emerging Sciences FAST

Address: Karachi, Pakistan
CGPA: 3,1/4,0

PUBLICATIONS

Selected Publications

1. **Hashmi, K. A.**, Pagani, A., Stricker, D., & Afzal, M. Z. (2023). **BoxMask: Revisiting Bounding Box Supervision for Video Object Detection**. In *Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision* (pp. 2030-2040).
2. **Hashmi, K. A.**, Stricker, D., & Afzal, M. Z. (2022). **Spatio-Temporal Learnable Proposals for End-to-End Video Object Detection**. BMVC. 2022
3. Muralidhara, S., **Hashmi, K. A.**, Pagani, A., Liwicki, M., Stricker, D., & Afzal, M. Z. (2022). **Attention-Guided Disentangled Feature Aggregation for Video Object Detection**. *Sensors*, *22*(21), 8583.
4. **Hashmi, K. A.**, Pagani, A., Liwicki, M., Stricker, D., & Afzal, M. Z. (2022). **Exploiting Concepts of Instance Segmentation to Boost Detection in Challenging Environments**. *Sensors*, *22*(10), 3703.
5. **Hashmi, K.A.**, Ahmed, M., Pagani, A., Liwicki, M., Stricker, D. and Afzal, M.Z., 2021. **Survey and Performance Analysis of Deep Learning Based Object Detection in Challenging Environments**. Sensors, 21(15), p.5116.
6. **Hashmi, K.A.**, Stricker, D., Liwicki, M., Afzal, M.N. and Afzal, M.Z., 2021. **Guided table structure recognition through anchor optimization**. IEEE Access, 9, pp. 113521-113534.
7. **Hashmi, K. A.**, Liwicki, M., Stricker, D., Afzal, M. A., Afzal, M. A., & Afzal, M. Z. (2021). **Current Status and Performance Analysis of Table Recognition in Document Images with Deep Neural Networks**. IEEE Access, 9, 87663-87685.

8. Mishra, S., **Hashmi, K.A.**, Pagani, A., Liwicki, M., Stricker, D. and Afzal, M.Z., 2021. **Towards Robust Object Detection in Floor Plan Images: A Data Augmentation Approach**. Applied Sciences, 11(23), p.11174.

Extended Publications

1. Sinha, S., **Hashmi, K. A**., Pagani, A., Liwicki, M., Stricker, D., & Afzal, M. Z. (2022). **Rethinking Learnable Proposals for Graphical Object Detection in Scanned Document Images**. *Applied Sciences*, *12*(20), 10578.
2. **Hashmi, K.A.**, Bhatt, J., Afzal, M.Z. and Stricker, D., 2021. **A survey of graphical page object detection with deep neural networks. Applied Sciences**, 11(12), p. 5344.
3. **Hashmi, K.A.**, Pagani, A., Liwicki, M., Stricker, D. and Afzal, M.Z., 2021. **Cascade network with deformable composite backbone for formula detection in scanned document images**. Applied Sciences, 11(16), p.7610.
4. **Hashmi, K.A.**, Nazir, D., Pagani, A., Liwicki, M., Stricker, D. and Afzal, M.Z., 2021. **HybridTabNet: Towards better table detection in scanned document images**. Applied Sciences, 11(18), p.8396.
5. Kallempudi, G., **Hashmi, K. A.**, Pagani, A., Liwicki, M., Stricker, D., & Afzal, M. Z. (2022). **Toward Semi-Supervised Graphical Object Detection in Document Images**. *Future Internet*, *14*(6), 176.
6. Minouei, M., **Hashmi, K. A.**, Soheili, M. R., Afzal, M. Z., & Stricker, D. (2022). **Continual Learning for Table Detection in Document Images**. *Applied Sciences*, *12*(18), 8969.
7. Shehzadi, T., **Hashmi, K. A**., Pagani, A., Liwicki, M., Stricker, D., & Afzal, M. Z. (2022). **Mask-Aware Semi-Supervised Object Detection in Floor Plans**. *Applied Sciences*, *12*(19), 9398.
8. Naik, S., **Hashmi, K. A**., Pagani, A., Liwicki, M., Stricker, D., & Afzal, M. Z. (2022). **Investigating Attention Mechanism for Page Object Detection in Document Images**. *Applied Sciences*, *12*(15), 7486.
9. **Hashmi, K. A.**, Ponnappa, R. B., Bukhari, S. S., Jenckel, M., & Dengel, A. (2019, September). **Feedback learning: Automating the process of correcting and completing the extracted information.** In *2019 International Conference on Document Analysis and Recognition Workshops (ICDARW)* (Vol. 5, pp. 116-121). IEEE.

WORK EXPERIENCE

[01/08/2020 – Current]

Researcher

Deutsches Forschungszentrum für Künstliche Intelligenz (DFKI)

Address: Kaiserslautern, Germany

City: Kaiserslautern

Country: Germany

1. Developing an energy-efficient autonomous navigation system for assembly robots with a special focus on object detection in multimodal video streams captured in challenging environments such as harsh weather conditions.
2. Building AI services in the field of manufacturing, such as defect detection, assuring safety standards, and so on.
3. Providing training to small and medium-sized enterprises about how to train, deploy and use AI models.
4. Publishing works under the domain of Object Detection/segmentation in Images/Videos under complex environments.
5. Co-tutoring Masters course of Deep Learning at RPTU Kaiserslautern-Landau.
6. Supervising Masters students for Thesis, Projects, and Seminars.

[01/12/2018 – 30/04/2020]

Research Assistant

Deutsches Forschungszentrum für Künstliche Intelligenz (DFKI)

Address: Kaiserslautern, Germany

1. Developed the concepts of Feedback Learning using Neural Machine Translation (NMT) to resolve post-IE (Information Extraction) errors in the digital mailroom systems.

2. Building an efficient OCR pipeline for historical documents.
3. Exploiting object detection and Instance Segmentation Networks to implement block segmentation in historical documents.
4. Worked with German Librarians to extract and analyse information with historical documents.
5. Technology Stack: Python, Open-CV, TensorFlow, PyTorch, OpenNMT, Keras, Docker, Git.

[15/08/2018 – 30/11/2018]

Junior Researcher

AWS Institute for Digital Products and Processes (AWSi)

Address: Saarbrucken, Germany

1. Developed a service platform to integrate innovative software solutions for the energy industry Support in the planning and design of a service-oriented IT architecture.
2. Development of software components for administration and orchestration of services.
3. Technology stack: Python, MongoDB, Flask and JSON for data propagation.

[15/01/2018 – 31/03/2018]

Research Assistant

Insiders Technologies GmbH

Address: Kaiserslautern, Germany

- Integrated gitlab repositories with gitlab monitor, displaying the current status of individual branches.
- Created a graphical representation system displaying the progress of each classifier in Kibana with respect to different parameters using elastic search.

[01/06/2016 – 01/08/2017]

Software Engineer/Data Analyst

Techlogix Pvt. Ltd

Address: Karachi, Pakistan

- Developed integration services between core banking system and business process application.
- Involved in developing a middleware for heterogeneous systems for one of the biggest banks in Pakistan and Saudi Arabia.
- Also responsible for developing predictive analysis based on customer's data of clients.
- Providing technical and functional trainings/support to the client
- Tools and technologies involved : IBM Integration service bus , IBM Message Queue, JAVA , XML , ESQL, XPath, IBM DB2 , Teradata , SQL Server 2016 , Oracle 12C

[01/08/2015 – 31/05/2016]

Programmer/Data Analyst

EDeQUAL Pvt. Ltd

Address: Karachi, Pakistan

- Responsible in developing the virtual learning environment, learning tool using LMS Moodle with many features like Notes and Third Party SSOs.
- Also responsible for making the reporting system by analyzing the results of students.
- Tools and technologies involved: PHP, JAVA, Moodle, JavaScript, MYSQL, JMeter.

TECHNICAL COMPE-TENCE

Technical Competence

1. **Languages / Software:** Python, C++, C, C#, Java, XML, ESQL, PHP, JavaScript.

2. **Other Framework and Libraries:** PyTorch, Tenserflow, Keras, Scikit-learn, Caffe, Pandas, Elastic Search, Kibana, Laravel, Spring.
3. **Source Code Management:** GIT, SVN, Gitlab.
4. **Tools and IDE:** Google Collab, Tensorboard, IBM Integration Bus, Anaconda, Spyder, PyCharm, Visual Studio, Eclipse, Netbeans. IBM Message Queue.
5. **Database:** IBM DB2, MongoDB, MSSQL, Oracle, SQL Server 2016, PLSQL, Tera Data.
6. **Deployment Servers and OS:** Docker, Slurm, WebSphere, Kubernetes, Linux.

ACHIEVMENTS

Achievments

1. Received Merit-based scholarship for all semesters.
2. Nominated for an AI New Commer Award by the German Society of Computer Science
3. Guest lectures on deep learning and Artificial Intelligence (Pakistan & Germany)
4. Reviewer for major computer vision conferences such as ECCV, BMVC, and journals including IEEE Access, Sensors MDPI, Springer Nature, and Neurocomputing.
5. Attended Explainability and Ethics in AI Summer School (BIFOLD TU Berlin 2022)

LANGUAGE SKILLS

Mother tongue(s): Urdu

Other language(s):

German

LISTENING B2 **READING** B2 **WRITING** B2

SPOKEN PRODUCTION B2 **SPOKEN INTERACTION** B2

English

LISTENING C2 **READING** C2 **WRITING** C2

SPOKEN PRODUCTION C2 **SPOKEN INTERACTION** C2

CERTIFICATIONS

Certifications

Python Data Structures: 7 weeks course offered on www.coursera.org in collaboration with the University of Michigan which introduces the core data structures of the python as a programming language. (https://www.coursera.org/account/accomplishments/certificate/4QE2ZR54WK6M)

Certifications

Intro to Data Science in Python: 4 weeks course offered on www.coursera.org in collaboration with the University of Michigan which introduces the concepts of data manipulation and cleaning techniques using the popular python pandas data science library.
(https://www.coursera.org/account/accomplishments/certificate/ZCMJVM9JHEJQ)