

PERSONAL INFORMATION

Salman Khan

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🌐 <https://sites.google.com/view/salman-k>

📄 Visa Status: Global Talent Visa



ABOUT

Enthusiastic researcher with strong development background in various domains ranging from statistical learning to advanced deep learning techniques for big multimedia data analysis, action/activity recognition, complex scene analysis, and healthcare. Interested in deployable research projects with supportive grip over Python, MATLAB, and deep learning frameworks (PyTorch, Tensorflow, and Keras).

RESEARCH AND DEVELOPMENT

06 Feb 2023 – Present

Research Fellow (Postdoctoral Researcher)

Visual Artificial Intelligence Laboratory

Oxford Brookes University, Oxford, United Kingdom

- Part of the “Epistemic AI” project funded by European Union’s Horizon 2020.
- Leading the project on “The Road Event Detection for Situation Awareness in Autonomous Driving”.

10 Feb 2020 – 31 Jan 2023

Research Assistant

Visual Artificial Intelligence Laboratory

Oxford Brookes University, Oxford, United Kingdom

- Led the project on “Deep learning for modelling complex video activities using graph neural networks”.
- Contributed to other lab research projects including ROAD (autonomous driving), neuro-symbolic reasoning, continual learning, and surgical robotics.

01 Sept 2022 – 31 Jan 2023

Visiting Researcher

Vision-CAIR

King Abdullah University of Science and Technology (KAUST), Thuwal, Saudi Arabia

- Worked on spatiotemporal sentence grounding.
- Worked on extending the vision-based complex activity models to language-assisted spatiotemporal video grounding.

01 Mar 2018 – 31 Jan 2020

Research Assistant

Intelligent Media Laboratory (IM Lab)

Sejong University, Seoul, South Korea

- Research studies related to disaster management (fire and smoke detection and segmentation), implemented in Python with different deep learning tools and published in reputed journals.
- Implemented a fully functional real-time baby monitoring system, deployed in a nursery by using hybrid image processing algorithms i.e., optical flow, frame difference, and background subtraction in Python.

EDUCATION

10 Feb 2020 – Feb 2023

PhD in Computer Vision

Oxford Brookes University, Oxford, United Kingdom

Thesis Title: Spatiotemporal Event Graphs for Dynamic Scene Understanding.

Supervisor: Prof. Fabio Cuzzolin.

01 Mar 2018 – 01 Feb 2020

Master's in Software Convergence (Computer Vision)

Sejong University, Seoul, South Korea

CGPA: 4.42/4.5 , Percentage: 98.4%

Thesis Title: Deep learning-based smoke detection and segmentation in surveillance videos.

Supervisor: Prof. Sung Wook Baik and Dr. Khan Muhammad.

10 Sep 2013 – 01 Sep 2017

Bachelor's in Computer Science (BSCS)Islamia College University Peshawar, Khyber Pakhtunkhwa, Pakistan

CGPA: 3.92/4.0, Percentage: 98%

Thesis Title: Multi-Grade Brain tumor Classification using Deep Convolution Neural Network.

Supervisor: Prof. Muhammad Sajjad.

SELECTED PUBLICATIONS

1. Singh, G., Akrigg, S., Di Maio, M., Fontana, V., Alitappeh, R. J., **Khan, S.**, ... & Cuzzolin, F. "Road: The road event awareness dataset for autonomous driving" **IEEE Transactions on Pattern Analysis and Machine Intelligence** (2022).
2. E Giunchiglia, MC Stoian, **S Khan**, F Cuzzolin, T Lukasiewicz "ROAD-R: The Autonomous Driving Dataset with Logical Requirements" **IJCAI 2022 – Workshop, IJCLR 2022**.
3. I Teeti, **S Khan**, A Shahbaz, F Cuzzolin "Vision-based Intention and Trajectory Prediction in Autonomous Vehicles: A Survey" **IJCAI 2022**.
4. **S. Khan** and F. Cuzzolin "Spatiotemporal Deformable Scene Graphs for Complex Activity Detection" Proceedings of the British Machine Vision Conference (**BMVC 2021**).
5. **S. Khan**, et al. "Deepsnake: Deep learning model for smoke detection and segmentation in outdoor environments." **Expert Systems with Applications** **182** (2021): 115125.
6. **S. Khan**, K. Muhammad, S. Mumtaz, S. W. Baik and V. H. C. de Albuquerque, "Energy-Efficient Deep CNN for Smoke Detection in Foggy IoT Environment," in **IEEE Internet of Things Journal** (2019).
7. K. Muhammad, **S. Khan**, J. D. Ser and V. H. C. de Albuquerque, "Deep Learning for Multigrade Brain Tumor Classification in Smart Healthcare Systems: A Prospective Survey," in **IEEE Transactions on Neural Networks and Learning Systems**, doi: 10.1109/TNNLS.2020.2995800.
8. K. Muhammad, **S. Khan**, M. Elhoseny, S. Hassan Ahmed and S. Wook Baik, "Efficient Fire Detection for Uncertain Surveillance Environment," in **IEEE Transactions on Industrial Informatics**, vol. 15, no. 5, pp. 3113-3122, May 2019.
9. M. Sajjad*, **S. Khan***, K. Muhammad, W. Wu, A. Ullah, & S. W. Baik. Multi-grade brain tumor classification using deep CNN with extensive data augmentation. **Journal of computational science**, 30, 174-182 (2019). *Equal contribution

For complete list of publications, please visit my profiles: [Google Scholar](#), [ResearchGate](#), [Publons](#)**ADDITIONAL INFORMATION****Awards, Grants, and Scholarships**

- Our paper "ROAD-R: the Autonomous Driving Dataset for Learning with Requirements" has won two awards: **Best student paper** award at [IJCLR 2022](#) and **Best Paper Award** at the [IJCAI \(AI4AD\) 2022](#)
- **Fully-funded PhD studentship by Huawei Technologies** in Oxford Brookes University, UK (2020).
- **Fully-funded MS Scholarship** in Software Convergence, Sejong University, South Korea (2018).
- Paper on my BS thesis "Multi-grade brain tumor classification using deep CNN with extensive data augmentation" is the **most cited paper** in [Elsevier Journal of Computational Science](#).
- Winner of **Speed Programming** Competition at Islamia College University (ICUETC-15) (2015).

Technical Skills

Python, MATLAB, C++, C#.

Python libraries (OpenCV, Scikit-learn, Scikit-image, numpy, matplotlib etc.).

Deep Learning Tools (PyTorch, TensorFlow, Keras).

Conferences and Summer Schools

- Lead -organiser of the [ROAD++: The Second Workshop & Challenge on Event Detection for Situation Awareness in Autonomous Driving](#) at ICCV 2023.
- Co-organiser of the [ROAD-R 2023: the Road Event Detection with Requirements Challenge](#) at NeurIPS 2023.
- Selected for [International Computer Vision Summer School \(ICVSS\), Sicily, Italy, 2022](#). The summer school received 631 applications out of which only 130 are selected.
- Co-organiser of the [Continual Semi-Supervised Learning \(CSSL\) workshop/challenge at IJCAI 2021](#).
- Co-organiser of the [ROAD challenge/workshop at ICCV 2021](#) held in October 2021.
- Presented research paper at KingPC conference [ICNGC 2019](#) Jeju-do, South Korea.
- Attended KingPC conference [ICNGC 2018](#) Jeju-do, South Korea.

Services

- Student Member IEEE (S'19)
- Reviewer at CVPR, ICCV, BMVC, IEEE TII, IEEE IoTJ, AIR, CMC, IEEE TITS

References

1. Prof. Fabio Cuzzolin (Current PhD advisor)
Professor, Oxford Brookes University, Oxford, United Kingdom
Email: fabio.cuzzolin@brookes.ac.uk
2. Dr. Khan Muhammad (Master's co-supervisor)
Assistant Professor, Sungkyunkwan University, Seoul, South Korea.
Email: khan.muhammad@ieee.org
3. Dr. Naeemullah Khan (Lab member at VAIL)
Assistant Professor, King Abdullah University of Science and Technology, Thuwal, Saudi Arabia.
Email: naeemullah.khan@kaust.edu.sa