

# Mohammad Sadil Khan

PhD in 3D Computer Vision

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🌐 Sadil Khan

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## Summary

I am a doctoral researcher in 3D Computer Vision at the University of Luxembourg. I am proficient in building deep learning models using Python and R. My research interests are Computer Vision, Deep Learning, and Explainable AI.

## EDUCATION

### University of Luxembourg

*PhD in 3D Computer Vision*

**Kirchberg, Luxembourg**

*Dec 2022-*

### Katholieke Universiteit Leuven

*Erasmus Exchange in Faculty of Engineering Science*

**Leuven, Belgium**

*Sept 2021-Feb 2022*

### University Jean Monnet

*Masters in Machine Learning and Data Mining: Grade 15.6/20*

**Saint-Etienne, France**

*Sep 2020-Jul 2022*

### Chennai Mathematical Institute

*Masters(M1) in Data Science: CGPA 8.69/10*

**Siruseri, India**

*Aug 2019-Jul 2020*

### Ramakrishna Mission Residential College

*Bachelors in Mathematics. CGPA 8.8/10, Rank 2<sup>nd</sup>*

**Kolkata, India**

*July 2016-May 2019*

## EXPERIENCE

### CVI2 Lab

*Doctoral Researcher*

**Kirchberg, Luxembourg**

*Dec 2022*

### Creatis, INSA Lyon

*Research Intern*

**Lyon, France**

*Feb 2022 - Jul 2022*

- **Project** : Learning Shapes For The Effective Segmentation of 3D Medical Images using Point Cloud.
- Developed a novel approach to perform 3d Image Segmentation using point clouds.
- Modified RandLaNet, an attention-based point cloud segmentation network, with a Feature Extraction Layer to learn local spatial information.
- Developed a model-independent step to use the trained RandLaNet to perform 3d Image Segmentation.
- **Grade**: 16.5/20.
- **Supervisors**: Razmig Kechichian, Julie Digne and Sebastien Valette
- **Thesis Link**

### Laboratoire Hubert Curien

*Research Intern*

**Saint-Etienne, France**

*Apr 2021 - Aug 2021*

- **Project** : Detector-Encoder Autoencoders for unsupervised decomposition into visual parts.
- Developed DEA (Detector-Encoder AutoEncoder), a novel autoencoder for anomaly segmentation.
- Optimized SSD with GIOU loss.
- Designed AutoLabelMe, a GUI in Python for automatic Image Annotation. It's suitable for researchers and practitioners to automatically annotate objects in images for object detection.
- **Grade**: 16/20 (The Best Internship for Master M1).
- **Supervisors**: Rémi Emonet, Thierry Fournel.
- **Thesis Link**

### Accenture Digital

*Data Analyst Intern*

**India**

*May 2020 - Jul 2020*

- **Project** : Intelligent Inventory Planning
- Automatic Forecast Hedging to cover for Demand Gaps using AI
- Looking at Multiple indicators in past (Promo indicator, inventory situation, in transit, lead time volatility, demand volatility) referencing against future forecast hedging requirement
- Using this hedging to trigger additional replenishment quantity
- Ensuring the replenishment in transit to be accounted while the additional quantity is planned
- Use of Explainable AI algorithm for complete visibility of decision making and to be able to use WHAT-IF tool in Google Cloud Platform

## PUBLICATIONS

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- **Vignette Detection and Reconstruction of Composed Ornaments with a Strengthened Autoencoder**- M. Khan, R. Emonet, T. Fournel. Preprint is available in <https://hal.archives-ouvertes.fr/hal-03409930>

## PROJECTS

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- **Histopathologic Cancer Detection**: Created an Image Classifier to identify metastatic cancer in small image patches taken from digital pathology scans and applied Occlusion Analysis to explain the parts of the image are generally responsible for positive identification.
- **Used Cars Price Prediction**: Performed feature engineering and web scraping for missing value imputation and implemented XgBoost algorithm to predict the price of an used cars based on important features.
- **Multiple Minimum Support for Apriori Algorithm**: On UCL document dataset, I have implemented Multiple Minimum Support for Apriori algorithm from scratch using Python.

## SKILLS

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Python	Machine Learning	Keras
R	Deep Learning	Pytorch
Julia	Computer Vision	Tensorflow
Java	Image Processing	OpenCV

## AWARDS & SCHOLARSHIPS

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- BRMI Regional Scholarship, 2021-2022, France.
- Erasmus Scholarship, 2021-2022, France.
- Charpak BCS Scholarship, 2020-2021, India.
- DST Inspire Scholarship for being in top 1% in Higher Secondary Exam in India, 2016-2019, India.

## COURSES

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- Generative Adversarial Networks, Coursera, 2020-Present
- Deep Learning Specialization, Coursera, 2019-2021
- Machine Learning A-Z: Hands on Python and R in Data Science, Udemy, 2019

## LANGUAGES

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- English (C1)
- French (A2)
- Hindi (C2)
- Bengali (Native)