Bashir **Kazimi**

DEEP LEARNING · COMPUTER VISION

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Summary

Postdoctoral researcher at Helmholtz Center Hereon with interest and expertise in deep learning and computer vision.

Work Experience

Forschungszentrum Jülich   *Aachen, Germany*
RESEARCHER   *Feb. 2023 - Present*

Helmholtz Center Hereon   *Hamburg, Germany*
RESEARCHER   *Apr. 2021 - Dece. 2022*
- Research on segmentation of bone implants using deep learning and x-ray tomography data.
- Implementation of deep learning methods in Pytorch.
- Data analysis and visualization using Fiji/ImageJ

Leibniz University Hannover   *Hannover, Germany*
RESEARCHER   *Apr. 2017 - Apr. 2021*
- Research on detection and description of historical man-made landscape structures.
- Worked on digital terrain models from airborne laser scanning data.
- Worked with the ArcGIS software and Python Osgeo/Gdal library for data processing.
- Used Tensorflow and Keras libraries for implementing deep learning models.
- Published papers and open sourced implementations for classification, semantic segmentation, and instance segmentation of archaeological objects in digital terrain data using deep learning.
- Helped teach master level courses: Internet-GIS (2017) and Environmental Data Analysis (2018 & 2020)

University of Melbourne   *Melbourne, Australia*
VISITING RESEARCHER   *Nov. 2017 - Dec. 2017*
- Research visit as part of a scholarship award by DAAD: German Academic Exchange Service.
- Research collaboration between Institute of Cartography and Geoinformatics at Leibniz University Hannover and Department of Infrastructure Engineering at University of Melbourne.
- Worked on and published a paper for archaeological object detection in airborne laser scanning data.

Typeform S.L.   *Barcelona, Spain*
QUALITY ASSURANCE INTERN   *Jul. 2016 - Mar. 2017*
- Automated and manual software tests for featrues before being shipped for production.

Open University of Catalonia   *Barcelona, Spain*
JAVE DEVELOPER   *Frb. 2016 - Jul. 2016*
- Helped improve a website for students to upload programming assignments to be graded automatically.

Education

Leibniz University Hannover   *Hannover, Germany*
PH.D. IN GEODESY AND GEOINFORMATICS   *Apr. 2017 - Jul. 2021*
- Worked on applications of deep learning in airborne laser scanning data.
- Multiple publications and projects on detection of archaeological objects.

BarcelonaTch (Polytechnic University of Catalonia)   *Barcelona, Spain*
M.SC. IN ARTIFICIAL INTELLIGENCE   *Sep. 2015 - Apr. 2017*
- Fundamental courses and projects in Machine Learning, Computer Vision, and Natural Language Processing.
- Master Thesis in Neural Machine Translation supervised by Marta Ruiz Costa-jussà.
- Publication at International Conference of the Spanish Society for Natural Language Processing.

Middle East Technical University   *Ankara, Turkey*
B.SC. IN COMPUTER ENGINEERING   *Sep. 2010 - Jun. 2015*
- Got a Turkish Government Scholarship for undergraduate studies.
- Was part of a 4-people team that built a social network as a graduation project.

Skills

Languages	Persian (Native), Turkish (Advanced), English (Advanced), German (Telc-B1)
Technical skills	Python, Java, C++, Tensorflow, Keras, Pandas, Scikit-Learn, ArcGIS, Osgeo/Gdal, git, docker, SQL, Linux, Matploblib
Machine Learning	Linear/Logistic Regression, Clustering, Convolutional Neural Networks, Classification, Semantic Segmentation, Object Detection, Instance Segmentation, Prototyping

Publications

[1] B. Kazimi, P. Heuser, F. Schluenzen, H. Cwieka, D. Krüger, B. Zeller-Plumhoff, F. Wieland, J. Hammel, F. Beckmann, and J. Moosmann, "An active learning approach for the interactive and guided segmentation of tomography data," in *SPIE*, vol. 12242, p. 122420F, 2022.

[2] B. Kazimi, *Self Supervised Learning for Detection of Archaeological Monuments in LiDAR Data*. PhD thesis, Leibniz Universität Hannover, 2021.

[3] B. Kazimi, K. Malek, F. Thiemann, and M. Sester, "Effectiveness of dtm derivatives for object detection using deep learning," in *International Conference on Cultural Heritage and New Technologies 2019*, 2019.

[4] B. Kazimi, K. Malek, F. Thiemann, and M. Sester, "Semi supervised learning for archaeological object detection in digital terrain models," in *International Conference on Cultural Heritage and New Technologies 2020*, 2020.

[5] B. Kazimi, F. Thiemann, and M. Sester, "Detection of terrain structures in airborne laser scanning data using deep learning," *ISPRS Annals of Photogrammetry, Remote Sensing & Spatial Information Sciences*, vol. 5, no. 2, 2020.

[6] B. Kazimi, F. Thiemann, and M. Sester, "Semantic segmentation of manmade landscape structures in digital terrain models," *ISPRS Annals of Photogrammetry, Remote Sensing and Spatial Information Sciences*, vol. IV-2/W7, pp. 87–94, 09 2019.

[7] B. Kazimi, F. Thiemann, and M. Sester, "Object instance segmentation in digital terrain models," in *Computer Analysis of Images and Patterns* (M. Vento and G. Percannella, eds.), (Cham), pp. 488–495, Springer International Publishing, 2019.

[8] B. Kazimi, F. Thiemann, K. Malek, M. Sester, and K. Khoshelham, "Deep learning for archaeological object detection in airborne laser scanning data," in *Proceedings of the 2nd Workshop On Computing Techniques For Spatio-Temporal Data in Archaeology And Cultural Heritage co-located with 10th International Conference on Geographical Information Science*, 09 2018.

[9] F. Politz, B. Kazimi, and M. Sester, "Classification of laser scanning data using deep learning," *38th Scientific Technical Annual Meeting of the German Society for Photogrammetry, Remote Sensing and Geoinformation*, vol. 27, 2018.

[10] B. Kazimi and M. Costa-jussà, "Coverage for character based neural machine translation," *Procesamiento del Lenguaje Natural*, vol. 59, no. 0, pp. 99–106, 2017.