Saleh **Mozafari**

Senior Data Scientist | AI Solution Architect

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An accomplished Data Scientist and HCI Researcher with over a decade of experience, specializing in Artificial Intelligence, Machine Learning, and Computer Vision. With a robust background in full-stack development, I have a proven track record in creating comprehensive end-to-end solutions. My academic qualifications include a Master's degree in Artificial Intelligence and extensive expertise in Python, C++, and advanced analytics. My interdisciplinary skills in data science, full-stack development, and Human-Computer Interaction allow me to drive research and development projects, enhancing operational efficiency and fostering innovation.

Education

2016 – 2023 **PhD in Artificial Intelligence** - Technische Universität Kaiserslautern (Not Completed)
Thesis Title: Towards Eye Movements Analysis in HumanDocument Interaction

2009 – 2011 **M.Tech in Artificial Intelligence (Computer Cognition Technology)** - University of Mysore, India
Thesis Title: Cancer Prediction Using Microarray Expression Data
GPA: 9.3 / 10 *(Distinction)*

2000 – 2004 **B. Sc in Software Engineering** - Azad-Universität, Iran
Graduation project: Developing an Interactive E-Learning Platform Using ASP.NET: Innovations in Digital Education
GPA: 15.13 / 20 *(Iranian Grading Scale)*

Research Interests

- **Human-Computer Interaction**
- **Eye-tracking**
- **Generative AI**
- **LLMs**
- Cognitive Science

Skills

Programming Languages	**Python**, R, C, C++, JavaScript, Go
Libraries	**Numpy**, Scipy, **Pandas**, **scikit-learn**, scikit-fuzzy, scikit-image, **OpenCV**, dlib, **PyTorch**, CausalInference, Tensorflow, Keras, Statsmodels, Django, Flask, FastAPI, Sphinx
NLP and LLMs	**NLTK**, **SpaCy**, BERT, RoBERTa, T5, OpenAI GPT-3 / GPT-4, Hugging Face Transformers, LangChain, Gradio, **Streamlit**
Visualization Tools	**matplotlib**, **seaborn**, bokeh, plotly, ggplot2, Tableau
Databases	MySQL, PostgreSQL, MongoDB, GraphQL, Redis, Elasticsearch
IDEs	**PyCharm**, **Visual Studio Code**, Sublime-text, RStudio
MLOps Tools	**GitLab CI/CD**, **Docker**, Kubernetes, MLFlow, Apache Kafka
Operating System	Fedora, **Ubuntu**, MacOS, Windows

Honors and Awards

- Distinction student in Master of Computer Technology with GPA 9.3/10, University of Mysore, India.
- Best paper award in IAPR-HDI conference, Kyoto, Japan, Nov 2017.

Work Experience

Present – Sep 2018 | **Expert Data Scientist | Machine Learning Engineer** – **WidasConcepts GmbH**, Wimsheim, Germany

Project: Cidaas-ID-Validator
- Directed the development and deployment of scalable microservices for machine learning models, enhancing system efficiency.
- Developed high-precision OCR models for identity documents, improving data retrieval accuracy.
- Designed security check frameworks integrating Computer Vision and Probabilistic Graphical Models to detect fraudulent documents.
- Developed HCI applications using eye-tracking for real-time liveness detection in identity verification.
- Implemented MLOps frameworks ensuring continuous improvement and operational excellence of ML solutions.

Docker | Kubernetes | GitLab | DC/OS | Python | C++ | R | OpenCV | dlib | Ray | tesseract | ocrupy | Flask | Jupyter-notebook | numpy | scipy | pandas | matplotlib | seaborn | PyTorch | Pyro | Tensorflow | keras | scikit-learn | scikit-image | scikt-fuzzy

Present – 2020 | **Lead Data Scientist | Machine Learning Engineer** – **WidasConcepts GmbH**, Wimsheim, Germany

Project: Cidaas- FDS (Fraud Detection System)
- Architected ML-based cybersecurity solutions, enhancing fraud detection mechanisms.
- Developed RESTful APIs for real-time fraud analysis and immediate threat response.
- Maintained CI/CD pipelines for agile deployment and rigorous model testing.
- Innovated a Smart Multi-Factor Authentication (MFA) system using Fuzzy Inference Systems (FIS).
- Conducted Causal Inference analysis to identify fraud root causes, achieving a 97
- Achieved a breakthrough in fraud detection accuracy, reaching a very high accuracy rate of 97%, significantly reducing the risk and impact of fraudulent activities on the platform.

MLFlow | scikit-learn | scikit-image | scikt-fuzzy | CausalInference | Docker | Kubernetes | GitLab | Python | R | FastAPI | Jupyter-notebook | numpy | scipy | pandas | matplotlib | seaborn | MongoDB | Elasticsearch | Kibana

2022 – 2020 | **Lead Data Scientist | Machine Learning Engineer** – **WidasConcepts GmbH**, Wimsheim, Germany

Project: Bosch-EBR (Experience-based Repair)
- Developed NLP-based vehicle identification systems using NER and Graph Theory.
- Implemented RESTful APIs and stream processing frameworks for efficient data handling.
- Developed NLP-based Concept Identification Service to improve vehicle issue diagnosis.

Python | NLTK | SpaCy | Gensim | Faust | FastAPI | Elasticsearch | Kibana

2019 – 2018 | **Data Scientist** – **WidasConcepts GmbH**, Wimsheim, Germany

Project: Porsche-CCD (Corner Case Detection)
- Developed spatio-temporal models for predictive safety in Porsche vehicles.
- Designed interactive UIs using ReactJS for real-time monitoring.
- Implemented data streaming systems for efficient data processing.

Python | ReactJS | Bokeh | Plotly | Tornado | MQTT | scikit-learn

2019 – 2018 | **Computer Vision Engineer | Data Scientist** – **WidasConcepts GmbH**, Wimsheim, Germany

Project: Chinese Painting Seal Assessment
- Developed deep learning models for authenticating Chinese painting seals.
- Created RNN models to assess seal originality, preserving cultural heritage.

Python | Tensorflow | Keras | RNN | CNN | OpenCV | scikit-image | scikit-learn | JupyteLab | Pillow

Aug 2018 – Sep 2014 | **HCI Researcher and Developer** – **DFKI GmbH**, Kaiserslautern, Germany
- Modeled gaze movements within the Immersive Quantified Learning lab, advancing HCI.
- Designed HCI systems with eye-tracking technology for accessibility.
- Developed generative probabilistic models for eye-movement pattern synthesis.
- Teaching Assistant for Data Mining Course at TU Kaiserslautern.
- Supervised Master and Bachelor dissertations in AI and HCI.

KNIME | Python | C++ | R | Matlab | ZMQ | IoT | OpenCV | dlib | jupyter-notebook | numpy | scipy | pandas | matplotlib | seaborn | pillow | Edward | keras | scikit-learn | scikit-image | scikt-fuzzy | Git | TortoiseSVN

Aug 2014 – Nov 2013 | **Full-stack Developer** – **Yareegar Clinic**, Tehran, Iran
- Developed personality assessment systems and dynamic portals for psychological assessments.

Python2 | PHP | XAMPP | JavaScript | CSS | Autobahn|Python | TortoiseSVN | MySQL

Nov 2013 – Sep 2012 | **University Lecturer** – **Azad University**, Tehran (Roudehen), Iran
- Taught Machine Learning, Data Engineering, and Computer Vision to undergraduate students.
- Instructed postgraduate students in Data Analysis and Advanced Statistics.

Weka | Python | R | SPSS | Stata | Matlab

Languages

English	Business fluent
German	B1 - Telc Zertifikat
Persian	Native

Publications

1. **Saleh Mozafari**, Pascal Klein, Mohammad Al-Naser, Stefan Küchemann, Jochen Kuhn1, Thomas Widmann, and Andreas Dengel. Quantifying Gaze-based Strategic Patterns in Physics Vector Field Divergence. In Agents and Artificial Intelligence. Lecture Lecture Notes in Artificial Intelligence book sub series (LNAI). Springer International Publishing, 2021. (Under publication)
2. Pascal Klein, Jouni Viiri, **Saleh Mozafari**, Andreas Dengel, and Jochen Kuhn. Instruction-based clinical eye-tracking study on the visual interpretation of divergence: How do students look at vector field plots? In Physical Review Physics Education Research 14 (1), 010116, American Physical Society,2018.
3. **Saleh Mozafari**, Pascal Klein, Mohammad Al-Naser, Stefan Küchemann, Jochen Kuhn1, Thomas Widmann, and Andreas Dengel. Classification of Visual Strategies in Physics Vector Field Problem-solving. In Proceedings of the 12th International Conference on Agents and Artificial Intelligence - Volume 2: ICAART, 2020.
4. **Saleh Mozafari**, Pascal Klein, Jouni Viiri, Sheraz Ahmed, Jochen Kuhn, and Andreas Dengel. Evaluating similarity measures for gaze patterns in the context of representational competence in physics education. Proceedings of the 2018 ACM Symposium on Eye-tracking Research and Applications (ETRA), 2018.
5. **Saleh Mozafari**, Federico Raue, Saeid Dashti Hassanzadeh, Stefan Agne, Syed Saqib Bukhari, Andreas Dengel. Reading type classification based on generative models and bidirectional long short-term memory. International Conference on Intelligent User Interface (IUI), UISTDA Workshop, Japan, Tokyo, 2018.
6. Marc Beck, **Saleh Mozafari**, Syed Saqib Bukhari, Andreas Dengel. Landscape or Portrait? The Impact of Page Orientation on the Understandability of Scientific Posters. 14th IAPR International Conference on Document Analysis and Recognition (ICDAR), 2017.
7. **Saleh Mozafari**, Mohammad Al-Naser, Syed Saqib Bukhari, Damian Borth, Shanley EM Alleny, Andreas Dengel. An eye movement study on scientific papers using wearable eye-tracking technology. 2016 Ninth International Conference on Mobile Computing and Ubiquitous Networking (ICMU), Kaiserslautern, Germany, 2016.
8. **Saleh Mozafari**, Pascal Klein, Syed Saqib Bukhari, Jochen Kuhn, Andreas Dengel. Entropy-based transition analysis of eye movement on physics representational competence. Proceedings of the 2016 ACM International Joint Conference on Pervasive and Ubiquitous Computing, WAHM, 2016
9. **Saleh Mozafari**, Pascal Klein, Syed Saqib Bukhari, Jochen Kuhn, Andreas Dengel. A study on representational competence in physics using mobile eye-tracking systems. Proceedings of the 18th International Conference on Human-Computer Interaction with Mobile Devices and Services, 2016.
10. **Saleh Mozafari**, Syed Saqib Bukhari, Andreas Dengel. Analysis of Text Layout Quality Using Wearable Eye-trackers. IEEE International Conference on Multimedia and Expo Workshops (ICMEW), 2015.
11. Mohammad Al-Naser, Peter Lanzer, Andreas Dengel, Syed Saqib Bukhari, **Saleh Mozafari**. Knowledge transfer from experts to novices in minimally invasive catheter-mediated (MIC) interventions, eye-tracking study. Proceedings of the 18th International Conference on Human-Computer Interaction with Mobile Devices and Services, 2016.
12. Mohammad Al-Naser, **Saleh Mozafari**, Syed Saqib Bukhari, Damian Borth, Andreas Dengel. What Makes a Beautiful Landscape Beautiful: Adjective Noun Pairs Attention by Eye-Tracking and Gaze Analysis. Proceedings of the 1st International Workshop on Affect and Sentiment in Multimedia, 2015.
13. Marco Stricker, Syed Saqib Bukhari, Mohammad Al Naser, **Saleh Mozafari**, Damian Borth, Andreas Dengel. Which Saliency Detection Method is the Best to Estimate the Human Attention for Adjective Noun Concepts? International Conference on Agents and Artificial Intelligence (ICAART), 2017.
14. M Mohammadi, **Saleh Mozafari**, Aradhya VN Manjunath, G Hemantha Kumar. An Improved Handwritten Text Line Segmentation Technique. Advances in Computing and Communications. Pages 289-296, 2011.