AKO HEIDARI

☎(703) 627- 4757 | email | git | linkedin | scholar

PROFESSIONAL SUMMARY

AI Expert with over 7 years of hands-on experience in developing and implementing cutting-edge machine learning and deep learning solutions. Proficient in Python and industry-standard frameworks like TensorFlow and PyTorch, with a strong focus on NLP techniques including transformers, BERT, and GPT. Experienced in building scalable recommendation systems using collaborative filtering, clustering strategies, and advanced methodologies, including Generative AI. Skilled in cloud platforms and distributed computing, with a proven track record of manipulating and analyzing large datasets to drive data-driven decision-making. Recognized for my ability to communicate complex technical concepts to non-technical stakeholders, ensuring alignment and collaboration across teams.

Key Skills

Programming & Scripting:
- Proficient in Python, with a strong focus on building robust ML models and data pipelines.
- Experienced with version control using GitHub and GitLab.

Machine Learning:
- Skilled in using Scikit-Learn for SVM, Random Forest, and XGBoost.

Deep Learning:
- Proficient in applying CNN, RNN, and KNN.
- Expertise in using frameworks like PyTorch, Jax, TensorFlow, and Keras.

Generative AI (Gen-AI):
- Familiar with OpenAI API, LangChain, Hugging Face (HF), vector databases, retrieval-augmented generation (RAG), fine-tuning, ReAct, PEFT & LoRA

Natural Language Processing (NLP):
- Extensive experience with large language models and Transformer-based architectures, including BERT, RoBERTa, T5.

Recommendation Systems:
- Developed and implemented sophisticated recommendation systems using collaborative filtering, clustering strategies, and Generative AI techniques.

Database:
- Proficient in SQL and NoSQL databases, including PostgreSQL and MongoDB.

Cloud Platforms:
- Skilled in AWS & familiar with Google Cloud, and Azure.

Big Data:
- Familiar with Hadoop, Hive, and Spark.

PROFESSIONAL EXPERIENCE

Senior Data Scientist (September 2023 – Present)

Early Warning (Zelle) San Francisco, CA

- **Data Quality Initiative (DQI)**: A strategic approach to enhance data integrity through the application of traditional and advanced analytical techniques. This initiative encompasses measures such as record date verification, elimination of duplicate customer data, and the implementation of the Isolation Tree algorithm in conjunction with other unsupervised learning methods to facilitate efficient Unsupervised Duplicate Detection (UDD).
    - Managed CI/CD pipelines with GitLab-Harness.
- **Large Language Models (LLM) Adoption**: Championing the investigation and adaptation of powerful LLMs for internal use, Including a cost-benefit analysis of fine-tuning or implementing Retrieval-Augmented Generation (RAG) for open-source models such as LLaMA2 & 3

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Senior Data Scientist (November 2020 – August 2023)

Onfleet San Francisco, CA

- Leading the Advancement of Language Understanding: Spearheading the development and meticulous fine-tuning of a state-of-the-art Large Language Model (LLM)
- Developing and Improving the clustering method and Tensor-Flow based Deep Learning Model for Service-Time and Duration Estimation for our products. Utilized my expertise in data science and deep learning to enhance the accuracy and efficiency of service-time and duration estimation models.
    - ❖ Conducted research and analysis to develop advanced clustering algorithms
    - ❖ Implemented state-of-the-art deep learning models using TensorFlow,collaborated with cross-functional teams to gather requirements
    - ❖ Worked closely with the Deployment team, utilizing TensorFlow-Extended to deploy the improved models into production environments, ensuring scalability and performance.
    - ❖ Maintained and retained the machine learning models in production, monitoring their performance and making necessary updates to keep them relevant and accurate.

Senior Data Scientist (May 2019 – September 2020)

Brighterion/ MasterCard San Francisco, CA

- Developed and led a pioneering approach to predict the next recession in the US economy by combining AI models and leading economic indicators.
- Implemented a Recurrent Neural Network (RNN) with Long Short-Term Memory (LSTM) architecture to create an optimized predictive model.

Data Scientist (July 2018 –April 2019)

Centene St. Louis, MO

- Spearheaded the development of a novel approach to enhance predictive analytics in healthcare, specifically addressing the challenges posed by imbalanced datasets.
- Successfully applied Extreme Gradient Boosting (XGB) to optimize the prediction of birth outcomes, resulting in a substantial accuracy improvement from 53% to approximately 78%.

Data Scientist (September 2017 – June 2018)

Climate Corp St. Louis, MO

- Optimized nitrogen rate prescription for research fields by enhancing the TCC model.

Geospatial Data Analyst (intern) (May 2017 – August 2017)

ESRI Redland, CA

- Leveraged Python ArcGIS-API to conduct spatiotemporal analysis of social media data (Twitter)

RESEARCH EXPERIENCE

Graduate Research Assistant (Jan 2016 - May 2017)

Center for Ocean Land Atmosphere (COLA) Fairfax,VA

- EaSM-3: Land Use Change and Land Atmosphere Feedback Processes as Regulators of Regional Climate
- NASA: NNX13AQ21G Diagnosis and Validation of Land-Atmosphere Feedback in Two Global Models 2013-2017

Graduate Research Assistant (August 2013 - Dec 2015)

George Mason University, *Department of Geography and Geo-Information System Science*

- Water Cycle Intensification Indicator (WCI). NASA-ROSES-2012 A47: Development and Testing Potential Indicators for The National Climate Assessment 2013-2014

EDUCATION

- Ph.D. in Earth System Science, Department of Geography and Geo-information Science, George Mason University (GMU), 2013-2017.
- Master of Science (M.S.) in Computational Fluid Dynamics, College of Civil Engineering, Tehran University,2008.
- Bachelor of Science (B.S.) in Water Engineering, College of Agriculture, Tabriz University,2005.

AWARDS

- Winner of Innovative Award at the 2nd Mason Water Symposium, GMU Fairfax, VA, May 2016.
- Research Scholarship: George Mason University, 2013-2017

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PUBLICATIONS

- Heidari, A. "Confronting Climate Model with Satellite Data." 3rd NASA Satellite Soil Moisture Validation and Application Workshop, New York City, NY, September 2016.
- Heidari, A. "Uncertainty of Coupling Metrics between Soil Moisture and Heat Fluxes." 2015 AGU Fall Meeting.
- Mbuh, M. J., Houser, P. R., & Heidari, A. "Water Quality Estimation Using Combined Water Chemistry and Field Spectroscopy in the Shenandoah River, Virginia." International Journal of Applied Geospatial Research (IJAGR), 7(2), 14-37, 2016.

PRESENTATIONS

- "Satellite, Models, and Re-Analysis: Estimates of the Global Water Budget" - GMU-COLA, May 5th, 2015.
- "Climate Change Impact on the Global Water Cycle: Increase in the Range Between Wet and Dry Season Precipitation" - GMU-COLA, May 2nd, 2015.
- "Estimation of Generalized Extreme Value Distribution: Maximum-likelihood Method; Precipitation Annual Maximum Series" - Center for Ocean Land Atmosphere (COLA), GMU, Burke Garden, VA, Dec 7th, 2014.
- "The Impact of Climate Change on Rainfall Intensity-Duration-Frequency (IDF)" - Water Symposium, Civil Engineering Department, GMU, Nov 10th, 2014.

CERTIFICATIONS

Generative AI & Large Language Models:

- Career Essentials in Generative AI by Microsoft and LinkedIn
- Introduction to Large Language Models with Google Cloud
- The Power of Accurate Prompting with Anthropic's Claude.
- Prompt Engineering: How to Talk to the AIs
- Introduction to Conversational AI
- ChatGPT Prompt Engineering for Developers
- Building Systems with the ChatGPT API
- Fine Tuning Large Language Models
- Evaluating and Debugging Generative AI
- LangChain for LLM Application Development
- Understanding and Applying Text Embeddings

Natural Language Processing (NLP):

- AI Show: Building NLP models with Azure ML AutoML
- Deep Learning Foundations: Natural Language Processing with TensorFlow
- Natural Language Processing with PyTorch
- TensorFlow: Working with NLP

Chatbot Development:

- Building Intelligent Chatbots on AWS
- OpenAI API: Building Assistants
- Powerful Custom GPTs You Can Build Right Now

Deep Learning: Pytorch & TensorFlow:

- PyTorch Essential Training Deep Learning
- TensorFlow Essential Training Deep Learning
- TensorFlow: Working with NLP
- Building and Deploying Deep Learning Applications with TensorFlow

Big Data & DevOps:

- Apache Spark Essential Training: Big Data Engineering
- Continuous Integration and Continuous Delivery with GitLab
- Hadoop for Data Science Tips, Tricks, & Techniques
- DevOps for Data Scientists

Data Science & ML:

- The Data Science of Experimental Design
- Applied Machine Learning: Foundations
- Applied Machine Learning: Algorithms