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Hossameldin Mohammed

Website
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Summary

A senior machine learning engineer/scientist over than 9 years of experience working with data science machine learning and 6 years of developing and deploying deep learning models in various domains like human-machine interfaces, generative AI, NLP/NLU and model deployment on edge devices. With the possession of research and applied skills, I am looking for my next career move on the path to achieve my future career goals.

Skills

Python, C++, C#, Rust, Go, Java, Bash, Tensorflow, Pytorch, CUDA, Docker, Kubernetes, Kubeflow, Snowflake, Databricks, Microsoft Azure, AWS

Experience

Symend — Calgary, AB, Canada
Senior Machine Learning Engineer — October 2023-Present
Building LLM-based application with in-house and open-API models. End-to-end full stack development of machine learning solutions for content generation and customer segmentation.

Sunia Technology Inc. — Burnaby, BC, Canada
Senior Machine Learning Engineer — Mar 2022-October 2023

Touch screen gesture recognition using a CRNN framework, online handwriting recognition using sequence-to-sequence autoencoders (improved accuracy from 60% to 96% for over 60 languages), off-line handwritten mathematical expression recognition using transformers (improved accuracy from 55% to 78% using data augmentation and advanced modeling techniques), Touch screen stylus latency recognition using GRU-CNN framework, Image matting using modified YOLO and U2NET frameworks, off-line signature fraud identification system using dynamic signature synthesis and verification (SynSig2Vec) and Touch Screen Virtual Keyboard (early research stage)

Loxz Digital — Berkeley, CA, USA
Machine Learning Engineer — Sep 2021-Mar 2022
Building an Email Recommendation Engine that includes image, sentiment analysis, word count, send-time and quantitative prediction and optimization

AI Consultant — Vancouver, BC, Canada
Jun 2021-Present

Offering machine learning consulting services for AI startups, companies wanting to get into AI, and educational institutes wanting to integrate AI into their curriculums

British Columbia Institute of Technology — Burnaby, BC, Canada
Adjunct Faculty — Dec 2021-Jun 2022
Teaching Engineering courses

University of British Columbia — Vancouver, BC, Canada
Research Assistant — Jan 2017-Sep 2021
Detection and filtering of sun glare in autonomous vehicle sensors, generative modeling of cyclists in off-street paths using LSTIM-based Variational Autoencoders, clustering of cyclist following and overtaking stages using mixed mixture modeling, and collaboration in the development of BITSAFS Traffic Intelligence (TI) software for computer vision-based traffic analysis

SETS Intl. Cairo, Egypt
Data Scientist Nov 2014-Dec 2016
Projects:
Towards wise cities: A data-driven approach for sustainable mobility, traffic management program for the city of Riyadh, KSA, building a database management system for data warehousing and retrieval for the Ministry of Transportation in Cairo, Egypt, truck Sampling and portable emission measurement for modeling Cairo transportation emissions phase II, building a longitudinal cohort study for transportation demand time series data collected at the city of Riyadh, KSA

Cairo University Cairo, Egypt
Research Assistant Sep 2012-Dec 2016
Conducting research on modeling and simulation of transportation systems

Education

University of British Columbia Vancouver, BC, Canada
Master of Applied Science 2023
Thesis: "Imitation learning agent-based microscopic simulation of bicycle traffic"

Cairo University Cairo, Egypt
Master of Science in Engineering 2016
Thesis: "A bi-level approach for calibrating a mesoscopic traffic simulation model of Greater Cairo Region"

Cairo University Cairo, Egypt
Bachelor of Science in Engineering 2012

Selected Publications

2021 Mohammed, H., Sayed, T., Bigazzi, A. Y. Microscopic modeling of cyclists on off-street paths: A stochastic imitation learning approach, Transportmetrica A: Transport Science, DOI: 10.1080/23249935.2020.1870178s.

2019 Mohammed, H., Bigazzi, A. Y., Sayed, T. Unconstrained Cyclist Trajectory Simulation for Agent-Based Models. 54th Annual Conference of the Canadian Transportation Research Forum, Vancouver, BC, Canada.

2019 Mohammed, H., Sayed, T., Bigazzi, A. Y. Toward Agent-based Microsimulation of Cyclist Following Behavior: Estimation of Reward Function Parameters Using Inverse Reinforcement Learning (No. 19-03431).

2018 Mohammed, H., Bigazzi, A. Y., Sayed, T. Characterization of bicycle following and overtaking maneuvers on cycling paths. Transportation research part C: emerging technologies, 98, 139-151.

Patents

2023 Mohammed, H, Xu, K, et al, Touch Rawpoint Process for touch screen devices. (submitted)

2022 Mohammed, H, Chan, C K, et al, Online stylus trajectory prediction process (submitted)

Awards

2023 ICDAR CHROME competition on handwritten mathematical expression recognition (first place)

2021 Statistical Society of Canada (SSC) Annual Meeting, First place winner of the 2021 Case Studies in data analysis competition - Modeling COVID-19 disease dynamics in Canada

2020 University of British Columbia, President's Academic Excellence Initiative PhD Award

2017 University of British Columbia, International Tuition Award

2012 Cairo University, Master Degree Fellowship