Mehdi Azad

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Summary: 8+ years experienced Machine Learning and Systems Design with a strong background in software development, specializing in computer vision, robotics, and natural language processing.

- Developed and deployed ML and data pipelines and software solutions for biotech and healthcare.
- Led the creation of a biotech device prototype, resulting in a high-impact publication and a US provisional patent.
- Proficient in multiple programming languages and frameworks including Python, Java, PyTorch, OpenCV, and HPC.
- Experienced computer science instructor, teaching data structures & algorithms, data science, and object-oriented programming

Key Skills

(Generative) AI/ Computer Vision/ Machine Learning/ Reinforcement Learning/ Robotics/ NLP/LLM/ Data Science/ Systems Design/ Statistical Modeling/ MLOps/ DevOps /Cloud Computing

Education

MEng in Systems Design Engineering | ***University of Waterloo*** 2019 - 2020
Specialization: Artificial Intelligence and Machine Learning

MSc in Engineering | ***Iran University of Science and Technology*** 2004 - 2007

BSc in Engineering | ***Isfahan University of Technology*** 2000 - 2004

Work Experience

Research Scientist/ Instructor | ***George Brown College*** Jan 2024 - Present
School of Computer Technology
- Investigated application of protein language models (pLMs) in protein design and engineering
  - Employed LLMs to (1) predict active sites and mutation effects of antibodies, and (2) generate useful antibody sequence
- Courses: Applied Data Science/ Data Structure and Algorithm/ Object-Oriented Programming

Machine Learning Scientist | ***SickKids Hospital*** May 2021 - Nov 2023
AI researcher in a team of experimental and computational neuroscientists
- Built a biotech device automating pain testing in mice - (resulting in a high-impact publication and a US provisional patent)
  - Applied ML pipelines for computer vision-based object detection and real-time tracking with 0.01mm accuracy
  - Performed system design and built the prototype of motion tracking robot to solve poor reproducibility and low throughput problem of manual pain testing
- Proposed a novel and reproducible metric to evaluate pain behavioural response in mice
  - Designed experiments and collected/cleaned data and pioneered in quantifying non-reflexive behaviors
  - Drawn meaningful patterns from behavioural precise data through exploratory data analysis/visualization and developed ML model to predict the data

Data Scientist | ***University of Waterloo, Spafford Neurobiology Lab*** Sep 2019 - Aug 2020
Systems design engineer focusing on solving life science problems
- Pioneered in capturing electrophysiological signal emanating from living micro organisms
- Effectively communicated research findings to both technical and non-technical audiences

Control Systems Consultant | ***Energy Industries Engineering & Design (EIED)*** Sep 2014 - Feb 2017
Control systems consultant in natural-gas refinery plants systems design
- Supervised and approved intelligent control system algorithms to ensure compliance with requirements
- Collaborated with multidisciplinary teams to test the functionality of packages for distributed control systems

Control Systems Software Developer | ***PoyaKar - Manufacturing Co.*** May 2010 - Aug 2014
Control engineer leading mechatronics systems design
- Developed software to achieve precise motion control in CNC machines with 5 μm accuracy

Technical Skills

Programming Language: Python/ Java/ SQL/ Scala
Frameworks & libraries: PyTorch/ Apache Spark/ Scikit-learn/ Pandas
Tools & Technologi: High Performance Computing (HPC)/ AWS/ Git & GitHub/ Docker/ Kubernetes