Farhad Baghyari
Python Developer

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Technical Skills

- **Programming Languages:** Python (Expert), C# (Competent).
- **Frameworks and Libraries:** FastAPI, NetworkX, Socket.io, WebSocket, Backtrader, Pandas, NumPy, CuPy, cuDF, Numba, Selenium.
- **Databases:** MongoDB, InfluxDB.
- **Tools and Technologies:** Git, Docker, Linux.
- **Machine Learning:** Model development, data validation, predictive analytics, XGBoost, Random Forest.
- **Other Skills:** Optimization, real-time scheduling, robotics, simulation.

Summary

Results-driven Python developer with extensive experience in building and optimizing complex systems from the ground up. Proficient in real-time scheduling, scalable algorithm development, and data-driven advisory systems. Adept at leveraging Python and modern frameworks to deliver high-impact solutions that enhance efficiency and scalability. A proactive problem-solver dedicated to creating innovative solutions that meet diverse technical challenges in software development.

Experience

Python Developer, Forvest Inc., forvest.io, Sep 2021 – July 2024

- Engineered a suite of microservices using Python and FastAPI, enhancing system modularity and scalability.
- Developed an advisory algorithm leveraging SCC data to provide portfolio management suggestions, utilizing convex optimization techniques.
- Developed a prototype of an AI-powered chatbot using the OpenAI API, aimed at enhancing user interaction and support; currently undergoing fine-tuning before deployment.
- Led the creation of SCC, a predictive model forecasting coin correlations; oversaw model design, data validation, and deployment.
- Implemented algorithmic trading solutions in Pine Script and Python (Backtrader), automating data collection with custom web scraping tools using Selenium.
- Utilized InfluxDB and MongoDB for efficient data storage and retrieval of time-series and chat data.

R&D engineer, AVEC-lab, avec-lab.com, Sep 2022 – Present

- Pioneered the development of the Smart Selective Navigator (SSN) using Python, addressing complex arc routing problems with turn restrictions for autonomous vehicles. Designed in an OOP framework, SSN became a flexible routing solution, later adapted for multiple projects.
- Optimized operational data processing for Oshawa's winter services, creating feasible routes for snowplowing and salting operations.
- Developed a real-time scheduling algorithm for KITECH, enabling dynamic adjustments of vehicles and servicing areas.
- Enhanced the scalability of SSN for the city of Surrey, automating processes for large-scale routing scenarios.
- Designed an exploration algorithm for KIMM to minimize vehicle overlap and operation time in multi-vehicle tasks.

R&D engineer, FUM Robotics Lab., fum-care.com, Apr 2015 – Jan 2021

- Led the design and development of various robotics projects, including industrial robot arms and motion simulators.
- Conducted kinematics and dynamics calculations for complex robotic systems.
- Optimized workspaces for series and parallel robots to improve operational efficiency.
- Managed teams focused on optimization, design, and calculations, fostering collaboration and innovation

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Projects

Knowledge Graph Generation from Large Texts using OpenAI GPT

- **Description:** Developed a method to create knowledge graphs from extensive textual content (such as large novels) using OpenAI GPT models. Implemented algorithms to extract entities and relationships, enabling efficient information retrieval and analysis from unstructured text data.
- **Technologies Used:** Python, OpenAI GPT, Natural Language Processing (NLP), Knowledge Graphs.

Robotics Simulation in Isaac Sim with ROS2 and CUDA

- **Description:** Built advanced simulations in NVIDIA Isaac Sim using ROS2, focusing on efficient programming practices and CUDA acceleration. Optimized simulation performance for robotics applications, enhancing the testing and development process of robotic systems.
- **Technologies Used:** Python, Isaac Sim, ROS2, CUDA, Robotics Simulation.

Education

Master of science in Mechanial Engineering, Specializing in Mechatronics

Ontario Tech University, Sep 2022 – May 2024, GPA 4.1 out of 4.3

Relevant Coursework: Intro. To Large Language Models (LLM), Convex Optimization

Bachelor of science in Mechanial Engineering, Specializing in Robotics

Ferdowsi University of Mashhad, Sep 2012 – Sep 2017, GPA 15.05 out of 20

Relevant Projects: Optimization on robotics projects.