HEMANTO BAIRAGI

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SUMMARY

- Software Engineering specializing in Machine Learning, Artificial Intelligence & Python development.
- Transitioned from Physics, to Financial Physics and Engineering to Software Engineering professionally.
- GitHub Link: https://github.com/Orko24
- LinkedIn Link: https://www.linkedin.com/in/hemanto-bairagi-865027101/
- Portfolio Link Web: https://orko24.github.io/react_repository/
- Portfolio Link PDF: https://github.com/Orko24/Portfolio_Hemanto_Bairagi
- Specializes in Python, C/C++, Go / Golang programming languages, SQL, and Algorithm Development.

RELEVANT SKILLS

- Bachelor of Science – Hons in Physics and Astrophysics with an emphasis on Software Engineering.
- Extensive experience using LLM to design software applications like Chat GPT and Microsoft Co-Pilot rapidly.
- Extensive experience using SQL alchemy, SQLlite3, PostgreSQL, and Python to translate vast unstructured data into structured SQL databases.

EXPERIENCE

ICE Process Management LLC. April 2024 to present

Software Consultant:

- Provide software consulting on design, rollout, development, and production.
- Skills: Investment Analysis, Private Equity Evaluation, software design, Investor Relations, Market Analysis, and Business Strategy. Designed investor presentations, market analysis, budget analysis, and software development process analysis.

Software & Artificial Intelligence Engineer:

- The role is to design, develop, and produce the Backend for a Large Language Model that can produce chatbots from a General Knowledge Domain.
- Skills gained: SQLite, Python, NLP, LLM, Lang-Chain, Chroma DB, SQL Alchemy, Web Application Design, Data Pipelines, OCR, Artificial Intelligence, Vector Databases and Embedded Vector Databases, R.A.G systems, Chatbots, Pandas, NumPy, ChatGPT, Microsoft Co-pilot, Llama3, OpenAI.
- The project was to design a Data Processing system that could translate 100s of PDFs into a usable SQL database, which could then be vectorized and turned into a Vector Database that could serve as the basis of a Chatbot that could be integrated into a web application to serve the Network Security market.

Scale AI: Remote Tasks. Jan 2024 to June 2024

AI Consultant:

- Designed, evaluated, and ensured the quality of LLM (Large Language Model) performance.
- Skills gained: Python, Golang, SQLite, PostgreSQL, Google BigQuery, Java, C++, C, JavaScript, TypeScript, React, NextJS, Dart, HTML, CSS, Prompt Engineering, LLM & Foundation Models (Flamingo), Database Engineering, Data Engineering, Software Quality Assurance, Software Development & Testing, Machine Learning, Artificial Intelligence, ChatGPT, OpenAI, Generative AI.
- Data Engineering skills: Python, Azure Data Studio, Pandas, PostgreSQL Integration, Natural Language Analysis, JSON, PostgreSQL, Kaggle API integration, Hugging Face API.
- Machine Learning skills: specialized in PyTorch, Keras, TensorFlow, and Spacy.
- Example project: stock bot using machine learning for price predictions with security data: https://github.com/Orko24/Vhagar_prototype.

IBM Startup Partner Program; Adamas Audio Jan 2022 to Jan 2024

Lead Software Engineer and Software Architect:

- Designed, developed, produced, and deployed code for Adamas Audio in a test-driven agile environment.
- Skills gained: Python, Java, Machine Learning, AI, ML Libraries (Keras, PyTorch, TensorFlow, Scikit-learn, Pandas, NumPy), API development, Frontend (HTML, CSS, JavaScript, Node.js), ETL, C++, C#, C, Golang, SQL, Site Operation

Management, DNS, Domain Transfer, Site Migration, Cloud Computing (Azure, AWS, GC), Django, Flask, Redis & Celery, Linux, Bash Script, Git, GitHub, GitOps, Cryptography, SSL & Cyber Security, Data Analysis & Data Science.

- Code hosted on IBM Cloud bare metal servers, funded by IBM from May 1, 2023, to Nov 1, 2023, at $3000/month. Service discontinued due to lack of profit. Code repository: https://github.com/Orko24/Final-Update-Adamas1. Postproduction updates in Golang, Java, and C++ for scalability: https://github.com/Orko24/FFMPEG_Golang_replacement.
- Adamas Audio allowed customers to create custom audiobooks at scale: https://www.adamasaudio.com.
- Full article: https://adamas-audio.medium.com/adamas-audio-machine-learning-and-web-development-to-produce-cheap-audiobooks-and-voice-cloning-a05608e4485f.
- Developed all components (Frontend REST APIs, client data management system, Backend Data Deriving APIs, Django Middleware) in an agile Test-driven environment. Frontend in HTML, CSS, and JavaScript. Backend APIs in Python, C++, C#, C, Java, Golang, SQL. Django Middleware connected frontend and backend. Client database management also served as a data governance policy.
- Integrated data pipeline using Django Middleware enabled derived datasets and data products to be created and passed from server to client per API request. Built data products with ML libraries (PyTorch, TensorFlow, Keras, Scikit-learn, Pandas, NumPy). Hosted Adamas Audio with Apache, using server instance templates in C/C++: https://github.com/Orko24/Apache_django_ssl_web_integration. Integrated SSL certificates into the DNS Apache pipeline to encrypt all web traffic with HTTPS per API client request.

Quant-connect June 2020 to Jan 2022
Algorithmic Trader

- Skills gained: Python, Financial Physics, Financial Engineering, Software Development, Algorithm Development, TensorFlow, Keras, SciKit-Learn, Predictive Analytics, Lean Trading Engine.
- Transitioned from Physics to Financial Physics and Financial Engineering, gaining experience in Financial Engineering, Software Development, and Algorithm Development.
- Developed algorithms in Python using predictive analytics to identify equity price patterns based on trading sentiment and fundamentals, generating buy/sell signals. Utilized the Lean Trading Engine framework for live trading and back-testing algorithms: https://www.lean.io/#topic100.html.

University of Calgary Sept 2019 to June 2020
Undergraduate Researcher

- Used C++, C, Python, Mathematica, and MATLAB in a research setting to track photons from a green laser and build an ODMR. Thesis given in this GitHub repository: https://github.com/Orko24/ODMR_thesis/blob/master/Hemanto_Bairagi_Final_Report_Draft_3%20(1).pdf
- Link verifying research: https://iqst.ucalgary.ca/sites/default/files/teams/1/IQSTReport20192020.pdf
- ODMR thesis: Focused on quantum optics and quantum computing built an optically detected magnetic resonance (ODMR) microscope. Qubits were used to produce nanoscale imagery and video.

EDUCATION & TRAINING

Bachelor of Science: Astrophysics
University of Calgary
Calgary, AB
From Sept 2016 to Feb 2021

- Achieved Honors
- Dean's List Honoree [2020]
- GPA: 3.5/4.0

Bachelor of Science: Physics
University of Calgary
From Sept 2016 to Feb 2021

- Achieved Honors
- Dean's List Honoree [2020]
- GPA: 3.5/4.0

REFERENCES CAN BE PROVIDED UPON REQUEST

- https://www.linkedin.com/in/paul-barclay-648a1531/
- https://www.linkedin.com/in/jason-donev-76659922/