# 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.

## EXPERIENCE

Scale AI: Remote Tasks. Jan 2024 to present

AI Consultant:

- The role is to design, evaluate, and ensure the quality of LLM (Large Language Model) performance.
- Skills gained and refined: Python, Golang, SQLite, PostgreSQL, Google BigQuery, Java, C++, C, JavaScript, TypeScript, React, NextJS, Dart, HTML, CSS, Prompt Engineering, LLM (Language Learning Model) & 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 frameworks developed and specialized in: PyTorch, Keras, TensorFlow, and Spacy.
- Example project of a stock bot that uses machine learning to generate price predictions using security data is given here: https://github.com/Orko24/Vhagar_prototype

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

Lead Software Engineer and Software Architect:

- Role was to design, develop, produce, deploy code for Adamas Audio. Code and software architecture was developed, implemented, and tested in a test-driven agile environment.
- Skills gained: Python, Java, Machine Learning, Artificial Intelligence, Machine Learning Libraries like Keras, PyTorch, TensorFlow, Sci-kit Learn, Pandas, NumPy, etc. API development, Frontend: HTML, CSS, JavaScript, Node.js, ETL software. Programming Languages like: Python, Java, C++, C#, C, Golang, SQL. Site Operation Management, DNS, Domain Transfer, Site Migration, Cloud Computing (Microsoft Azure, AWS, and GC), Django, Flask, Redis & Celery data development and integration. Linux, Bash Script, Git, GitHub, GitOps, Cryptography, SSL & Cyber Security, Data Analysis & Data Science.
- Code was housed on IBM Cloud bare metal traditional servers. Service received funding from IBM starting May 1st 2023, ran to Nov 1st 2023, with a funding of 3000 USD monthly. Site went down due to lack of profit and funding, the code is given in this GitHub repository: https://github.com/Orko24/Final-Update-Adamas1
- Postproduction updates written in Golang, Java and C++ to ensure scalability. The code is given in the following repository: https://github.com/Orko24/FFMPEG_Golang_replacement
- The purpose of Adamas Audio was to allow customers to create custom audiobooks at scale. It is was hosted at: https://www.adamasaudio.com
- Full article detailing it can be found https://adamas-audio.medium.com/adamas-audio-machine-learning-and-web-development-to-produce-cheap-audiobooks-and-voice-cloning-a05608e4485f
- All components Frontend REST APIs, client data management system, Backend Data Deriving API's, Django Middleware were developed in an agile Test-driven environment. Front-end components were coded in HTML, CSS and JavaScript. The data pipeline connecting front and backends was made using Django

Middleware. Backend data processing APIs built in Python, C++, C#, C, Java, Golang, SQL. Client database management system doubled up as a data governance policy, to allow security at scale.

- Integrated frontend to backend data pipeline allowed derived datasets and data products per client API request to be created and passed from server to client via the pipeline built through Django Middleware.
- Data products were built using Machine Learning libraries like: PyTorch, TensorFlow, Keras, Scikit-learn, Pandas, NumPy, etc. Adamas Audio was hosted using Apache, Apache server instance templates written in C/C++ are given here: https://github.com/Orko24/Apache_django_ssl_web_integration.
- SSL certificates integrated into DNS Apache pipeline, allowing HTTPS technology to encrypt all web traffic to and from the server 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.
- Made the transition from Physics to Financial Physics and Financial Engineering. Allowed the gaining of experience in Financial Engineering, Software Development and Algorithm Development.
- Algorithms were developed in Python. Predictive analytics was used to identify patterns regarding equity prices based on financial factors like trading sentiment and fundamentals to generate buy/sell signals for equities. The lean trading engine Framework was used to live trade and back test 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 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/