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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/](https://orko24.github.io/react_repository/)
- Portfolio Link PDF: [https://github.com/Orko24/Portfolio\\_Hemanto\\_Bairagi](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 rapidly design software applications like Chat GPT and Microsoft Co-Pilot.
- Extensive experience using SQL alchemy, SQLite3, PostgreSQL, and Python to translate vast unstructured data into structured SQL databases.

## 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.
- An 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](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, and 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, 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](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](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](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/>