

---

## 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: [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.

## EXPERIENCE

Scale AI: Remote Tasks.

Jan 2024 to present

AI Consultant:

- Role was to design prompts involving LLM (Language Learning Models) and evaluate the response.
- These models were coded in the following languages: Python, Golang, SQL, Java, C++.
- The prompts using LLM were used designed machine learning software that was utilized to insights into finance, astrophysics, orbital mechanics, agriculture feasibility studies, image recognition systems, and fossil identification systems. Experience in reviewing SQL query prompts and creating databases.
- Experience in connecting web applications to a MongoDB database to store results.
- Experience creating data pipelines for web scrapping purposes to feed into machine learning algorithms.

IBM Startup Partner Program; Adamas Audio

Jan 2022 to present

Lead Software Engineer and Software Architect:

- Role was to design, develop, produce, deploy code for Adamas Audio. Currently running ongoing postproduction support. 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, MATLAB, Mathematica, SQL. Site Operation Management, DNS, Domain Transfer, Site Migration, Cloud Computing, Django, Flask, Redis & Celery data development and integration. Linux, Bash Script, Git, GitHub, GitOps, Cryptography, SSL & Cyber Security, Data Analysis & Data Science.
- The site was migrated from Google Cloud to Liquid web to IBM Cloud bare metal traditional servers.
- Service received funding from IBM starting May 1<sup>st</sup> 2023, ran to Nov 1<sup>st</sup> 2023, with a funding of 3000 USD monthly. Site went down due to lack of profit and funding, code given in this GitHub repository: <https://github.com/Orko24/Final-Update-Adamas1>
- Postproduction updates written in Golang, Java and C++ to ensure scalability and patentability when profitable, are being applied. Update and update progress hosted in this GitHub repository: [https://github.com/Orko24/FFMPEG\\_Golang\\_replacement](https://github.com/Orko24/FFMPEG_Golang_replacement)
- The purpose of Adamas Audio was to allow customers to create custom audiobooks at scale. It is currently 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](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

- 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 designed around Industry selection like Technology and Pharmaceuticals.
- Algorithms were developed in Python. Machine Learning Libraries like Tensorflow, Keras, SciKit-Learn, were utilized to identify patterns within trading data. This was done to create predictive analytics regarding share and commodity prices. The lean trading engine Framework was utilized for live trading and back testing of Algorithms: <https://www.lean.io/#topic100.html>. Scanning Software to perform analysis on but not limited to trading volume, outstanding share volume, news feeds regarding trading catalysts and trading sentiment. The data generated was integrated into a machine learning predictive system to produce a scoring system, to create buy/sell signals for equities and commodities.

University of Calgary

Sept 2019 to June 2020

Undergraduate Researcher

- Utilized C++/C to program an Arduino to track photons emitted from experimental green laser.
- Experience utilizing programming languages like Python, C++, C, Mathematica, and MATLAB in a professional research setting. 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: Worked on building a building an optically detected magnetic resonance (ODMR) microscope, with the intent of mind to use qubits 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/>