

# JOAO VITOR BARROS DA SILVA

State College, PA

☎ 814-308-3273

✉ [jvitorbarros15@gmail.com](mailto:jvitorbarros15@gmail.com)

🌐 [linkedin.com/in/joaovi](https://www.linkedin.com/in/joaovi)

🐙 [github.com/jvitorbarros15](https://github.com/jvitorbarros15)

## Education

**The Pennsylvania State University, University Park**

May 2026

*B.S. in Computer Science, Minor in Entrepreneurship and Innovation*

## Technical Skills

**Programming & Development:** Python, JavaScript, C, Ruby on Rails, Solidity, SQL (PostgreSQL), React.js, Next.js, Node.js, Firebase, APIs, HTML/CSS, Git/GitHub

**Machine Learning & Cloud Technologies:** TensorFlow, PyTorch, LangChain, Scikit-learn, Pandas, NumPy, Large Language Models (LLMs), AWS, Docker

**Tools & Productivity:** Figma, Jira, Notion, WordPress, HubSpot, Microsoft 365

## Experience

**Library Strategic Technologies | Penn State University Libraries**

Oct 2025 – Present

*Software Development Intern*

*State College, PA*

- Developing and maintaining **Ruby on Rails** web applications for the **Penn State Libraries**, supporting **40K+ students and faculty** across the university.
- Solving engineering tickets, performing code reviews, and collaborating in an **agile, test-driven** environment.

**Blockchain Data Intelligence Lab | Penn State University**

Feb 2025 – Present

*Lead Researcher*

*State College, PA*

- Developing **QLink**, a quantum-safe Layer-3 interoperability protocol integrating **Quantum Key Distribution (QKD)** and **Post-Quantum Cryptography (PQC)** to secure cross-chain blockchain bridges.
- Simulated a 7-validator QLink network over 5–50 km QKD fiber links, achieving up to **707× surplus key throughput** and **<1 s latency**, outperforming classical blockchain bridges by **>400×** in cross-chain key refresh rate.

**Happy Valley LaunchBox | Penn State Startup Accelerator**

May 2023 – Jul 2024

*Innovation and Operations Intern*

*State College, PA*

- Spearheaded the integration of **HubSpot CRM** with a new internal UI, centralizing engagement data for **40+ active startups** and improving reporting visibility by **45%**.
- Automated workflows using **AI in Power Automate** to handle email communications and data extraction, increasing team efficiency by **30%**.
- Judged multiple startup pitch competitions and provided strategic feedback to early-stage founders.

## Projects

**ZorAi – Full Stack Decentralized App** | *React, Node.js, Solidity, OpenAI*

Mar 2025 – Present

- Built platform to **register and verify AI-generated images on the blockchain** to combat misinformation.
- Deployed **BNB testnet dApp** integrating **OpenAI API** for content analysis and **Pinata (IPFS)** for decentralized storage, verifying **5K+ AI-generated images** with **99% detection accuracy** and **<2 s verification latency**.
- Built **image detection layer** linking online media to on-chain AI records, reducing false positives by **40%**.

**Insurance Cost Prediction** | *Python, Scikit-learn, XGBoost, Seaborn, Matplotlib*

Jun 2025 – July 2025

- Designed and implemented an **end-to-end ML pipeline**, from data loading and cleaning to model evaluation.
- Benchmarked models including **XGBoost, Random Forest, Ridge, Lasso**, etc.; tuned with **GridSearchCV**.
- Achieved top performance with **XGBoost** ( $R^2 = 0.868$ ); **reduced MAE and MSE by 35%** compared to baselines.

**B3 Stock Clustering** | *Python, PCA, K-Means, GMM*

May 2025 - June 2025

- Clustered **60+ Brazilian stocks** by price behavior using **K-Means and GMM** on normalized financial metrics.
- Applied **PCA** for dimensionality reduction, revealing four clusters (growth, income, small-cap, and blue-chip).
- Developed a **Jupyter-based pipeline** automating data fetching, preprocessing, and clustering.

## Certifications

**AI Agents with RAG & LangChain** – IBM, Jun 2025

**AI & Blockchain Certificate** – Google, May 2025

**Machine Learning with Python** – IBM, Jun 2025

**Deep Learning & Neural Networks** – IBM, Jun 2025

**ML Web App with Streamlit** – Coursera, Jun 2025

**Fake News Detection (ML)** – Coursera, May 2025

## Leadership / Extracurricular

**Nittany Entrepreneur Society**

Jan 2024 – Present

*Web Development Team and Outreach*

*State College, PA*

- Built and maintained club site (**WordPress** → **React**) showcasing events, merch, and **700+ member community**.
- Led **outreach efforts**, organized **workshops**, and coordinated **guest speaker events** to boost engagement.