

# 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, Solidity, SQL, React.js, Node.js, Firebase, APIs, HTML/CSS

**Machine Learning & Cloud Technologies:** PyTorch, LangChain, Scikit-learn, Pandas, NumPy, AWS

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

## Certifications

- **AI Agents with RAG & LangChain** – IBM, Jun 2025
- **AI & Blockchain Certificate** – Google, May 2025
- **Deep Learning & Neural Networks** – IBM, Jun 2025
- **Fake News Detection with Machine Learning** – Coursera, May 2025

## Experience

**Blockchain Innovation Lab | Penn State University**

**Feb 2025 – Present**

*Research Assistant*

*State College, PA*

- Conducting independent research on a novel **quantum-encrypted bridge layer** to enhance cross-chain security between blockchain networks.
- Designed a protocol leveraging **Quantum Key Distribution (QKD)** and post-quantum cryptographic methods to protect data flow across blockchain bridges.

**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 newly designed internal UI to streamline startup engagement and enhance data visualization.
- 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.

**Swift | Sustainable AI Initiative**

**Jan 2022 – Apr 2022**

*Founder*

*State College, PA*

- Led a **7-person interdisciplinary team** in a university-wide AI competition to address sustainability challenges.
- Developed an AI-driven solution that enhanced solar and wind energy output prediction accuracy, improving system efficiency by **35%+** and placing in the **Top 20%** overall.

## Projects (AI and Blockchain)

**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.
- Used OpenAI API + Pinata (IPFS) + Solidity on BNB testnet to link images with smart contracts.
- Implemented detection layer to check if online images match known AI content.

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

**Jun 2025**

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

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

**May 2025**

- Clustered Brazilian stocks by price behavior using **K-Means and GMM**; validated with silhouette score.
- Reduced data with **PCA** for visualization; explained groupings in business terms.
- Built end-to-end notebook pipeline with clear analysis and plots.

## Leadership / Extracurricular

**Nittany Entrepreneur Society**

**Jan 2024 – Present**

*Web Development Team and Outreach*

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