

Robbie Walmsley

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EDUCATION

University of Massachusetts Amherst — Commonwealth Honors College Expected May 2029

B.S. in Computer Science, College of Information & Computer Sciences

- **Coursework:** CICS 210 (Programming with Data Structures), CICS 220 (Programming methodologies), CS 240 (Reasoning About Uncertainty), Calculus II Honors, Stat 315, Multivariable Calculus Honors, Linear Algebra Honors

EXPERIENCE

Software Engineer Intern Jun. 2024 – Aug. 2024

Farsight AI (Leading Fintech AI Startup) | Python, OpenAI API, Instructor, Pinecone Remote

- Built an SEC-filings RAG feature using **OpenAI APIs**, **Pinecone**, and a **sliding-window** chunker for long-document queries; improved tabular QA accuracy by **29%**.
- Optimized retrieval quality by evaluating 6+ embedding models, tuning top-k, metadata filtering, and reranking strategies; reduced average query latency by more than **22%**.
- Prototyped schema-constrained outputs (**Instructor**) to reliably return structured financial insights.

Open Source Contributor 2021 – Present

PyPDF, DocsGPT, Auto-GPT-Plugins, ColemakClub Remote

- Contributed features and fixes to high-traffic Python libraries (4M+ weekly downloads), including PyPDF, DocsGPT, and ColemakClub.
- Enhanced data handling (e.g., user data saving/downloading in ColemakClub) and modernized legacy code in PyPDF.
- Improved documentation, resolved pull requests, and optimized CI/CD pipelines in collaboration with maintainers and community members.

PROJECTS (MACHINE LEARNING)

Stealth Startup — Real-time Motion Analytics | Python, PyTorch, MediaPipe, AWS Feb. 2025 – Present

- Built a **causal Transformer** for 3D pose sequences (ViT-style PE + multi-scale temporal conv) with body-part-weighted loss added heads for quality scoring (coordination, smoothness, rhythm, presence) and style classification.
- Deployed a serverless, low-latency pipeline: **MediaPipe @ 100 Hz** → **API Gateway (WebSocket)** → **AWS Lambda (PyTorch)**; defined a compact JSON frame schema and robust routing.
- Designed spatial metrics (trajectory length, path complexity, level variation, body extension) and stage presence scoring; added temporal alignment + smoothing to handle speed/style variance and noisy keypoints.
- Delivered AI coaching outputs: automatic improvement suggestions, trend/peak detection, and next-movement quality prediction for sub-frame feedback in live sessions.

AutoRecycle | Python, PyTorch, Vision Transformers, Raspberry Pi Mar. 2023

- Ensembled a **ViT + Swin Transformer** on RealWaste dataset; achieved **95.49%** multi-class and **98.73%** binary recyclability accuracy.
- Built a Raspberry Pi-powered prototype with camera, servo, and ultrasonic sensor utilizing developed **Vision Transformer** for autonomous waste sorting + under 730ms actuation.

CERTIFICATIONS

CodinGame Certification – Python 3 (Peak Clash of Code Rank: Top 21/683,784) Jun. 2022

Credential ID: _179Cxp_rBc0oOB-VDTtdg

TECHNICAL SKILLS

Languages: Python, JavaScript/TypeScript, SQL, Bash, C++, HTML/CSS

Frameworks/ML: PyTorch, TensorFlow, Keras, scikit-learn, HuggingFace Transformers, LangChain

Data/Infra: Pinecone, Postgres, Pandas, NumPy, Docker, Linux, REST/Webhooks

Tools: Git/GitHub, CI/CD (GitHub Actions), VS Code, Firebase, Raspberry Pi, FastAPI, Flask