

Savitur Swarup

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EDUCATION

University of Pennsylvania

Philadelphia, PA

B.S.E. Computer Science (SEAS); B.S. Economics, Finance (Wharton); GPA: 3.8/4.0

Expected May 2028

- **Coursework:** Data Structures & Algorithms, Computer Systems, Automata & Computability, Discrete Math, Probability, Linear Algebra
- **Awards:** USA Computing Olympiad Gold Division; American Math Olympiad Gold Medalist

EXPERIENCE

Software Engineer

June 2026 – Present

Tara Ventures

Singapore

- Developed an ad-optimization pipeline (Python, Meta Marketing API, Google Ads API) that generates LLM-produced media and A/B tests it across product verticals.
- Implemented multi-armed bandit budget allocation across variants, auto-filtering underperformers; projected 50% improvement in ROAS / cost-per-acquisition over prior campaigns.
- Built closed-loop system feeding bandit/clustering into LLM generation, tweaking creative/audience each cycle.

Co-Founder & Software Engineer

Nov. 2025 – Present

Bridge AI

Philadelphia, PA

- Built an agentic AI system with a 45-tool registry executing real CRM actions (creating deals, moving pipeline stages, drafting follow-ups), with confirmation gates, snapshot-based undo, and trust-gating for destructive ops.
- Built a RAG pipeline on PostgreSQL/pgvector — halfvec(3072) embeddings + tsvector hybrid search with an async embedding worker; powers natural-language semantic search for contacts, notes, and documents.
- Engineered a multi-LLM routing layer across 7 providers (Claude, Gemini, OpenAI, Grok, Perplexity, DeepSeek, Qwen) with per-task routing, fallback chains, consensus voting, and per-call cost attribution.

Founder / CEO

Jan. 2023 – Aug. 2025

Jiro Web Solutions

- Founded a freelance web-dev agency serving small businesses across Asia; hired and trained a team of 5.
- Built full-stack apps with secure auth, Stripe payments, and Firebase/Supabase (PostgreSQL) backends.
- Deployed 20+ production sites and mobile apps using React, React Native, and Vue.

RESEARCH

Research Intern

May 2026 – Jul. 2026

RWTH Aachen University, Forschungszentrum Jülich

Jülich, Germany

- Built a single harmonized EEG pipeline (Python, MNE) across 8 public datasets (504 subjects, 8 clinical conditions), fitting a global microstate model and extracting 24 features per subject for classification.
- Showed microstate features robustly separate neurodegenerative disease from controls (Alzheimer's AUC 0.89, FTD 0.80), with an Alzheimer's-trained model generalizing to unseen FTD at AUC 0.92.
- Ran robustness checks (age-confound regression, permutation tests with 5000 shuffles, cross-site validation, ComBat harmonization), catching a spectral confound that inflated a false depression result.

Research Intern

Jun. 2024 – Sep. 2024

*A*STAR, Centre for Frontier AI Research*

Singapore

- Benchmarked multiple LLMs on multimodal sarcasm detection across various datasets under Prof. Cheston Tan.
- Built + fine-tuned custom model on benchmarking insights to improve context understanding and multimodal integration.

PROJECTS

Vig

2026

Quant Research Platform

Python

- Built a vol-targeted backtest engine with no-lookahead contract tests, purged walk-forward validation, and deflated-Sharpe trial-counting across 70 tests + CI.
- Reconstructed a point-in-time S&P universe to measure survivorship bias directly, showing most of the signal's edge was backtest artifact once bias was removed.
- Recovered net edge with no-trade turnover bands at half the cost drag, and caught a rename-leakage bug backdating index membership.

TECHNICAL SKILLS

Languages: Python, TypeScript, JavaScript, C/C++, Java, SQL

ML/AI: PyTorch, scikit-learn, pandas, NumPy, XGBoost, Hugging Face, MNE-Python, RAG (pgvector)

Web/Backend: React, React Native, Node.js, Express, Next.js, Prisma, REST APIs

Data/Infra: PostgreSQL, Redis, BullMQ, pg-boss, Supabase, Firebase, Docker