**Aryan Ashta** Melbourne, FL
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## Education

- **University of Illinois Urbana-Champaign** Champaign, IL
  *B.S. Mathematics & Computer Science* *Expected May 2030*
- **West Shore Jr/Sr High School** Melbourne, FL
  *Valedictorian: Rank 1 / 132 | 4.7 Weighted GPA | Perfect ACT* *May 2026*
  - Dual enrollment at Florida Institute of Technology: Calculus III, Probability & Statistics, Discrete Mathematics, Algorithms & Data Structures

## Research

- **Hierarchical Adapter Fusion (HAF)** August 2025 – Present
  *Independent Research: Continual Learning for LLMs*
  - Designed a continual learning framework combining a variational hypernetwork, FAISS-based hierarchical memory retrieval, and evolutionary candidate selection for parameter-efficient LLM adaptation
  - Achieved reduced adaptation cost by approx. 15x as compared to Self-Adapting Language Models (SOTA CL framework)
  - 1st Place, Brevard District Science Fair; Merit Award, Florida State Science Fair

## Projects

- **fin-RAG** April 2026 – Present
  *Retrieval-Augmented Generation for Financial Data* *Python, FAISS, HuggingFace Transformers*
  - Building a RAG pipeline over financial documents; working prototype complete, currently extending toward a fine-tuned model and REST API endpoint
- **M3 Challenge: Gambling Addiction Progression Model** February 2026
  *MathWorks Math Modeling Challenge* *Python, NumPy, Markov Chains*
  - Developed a Markov chain debt cascade model simulating individual and population-level progression through stages of gambling addiction using US and UK public health data
  - Submission passed the first round of judging in national competition

## Honors & Awards

- USNCO National Finalist (2024)
- National Merit Finalist (2026)
- Future Problem Solvers International Bowl Qualifier (2024)
- Brevard District Science Fair 1st Place; Florida State Science Fair Merit Award (2026)

## Technical Skills

- **Languages:** Python, JavaScript
- **ML / AI:** PyTorch, HuggingFace Transformers, FAISS, scikit-learn, NumPy, pandas
- **Concepts:** Continual learning, LoRA / parameter-efficient fine-tuning, retrieval-augmented generation, Markov chain modeling