

Saatvik Pradhan

+1 717-943-6303 | szp6118@psu.edu | linkedin.com/in/saatvik-pradhan | github.com/SaatvikP | saatvikpradhan.com

EDUCATION

Schreyer Honors College, Pennsylvania State University

BS in Computer Science and BS in Mathematics

State College, PA

Expected May 2026

GPA: 3.95/4.00 — Dean's List: Fall 2022, Spring 2023, Fall 2023, Spring 2024, Fall 2024, Spring 2025

Awards: President Walker Award, President Sparks Award

Stanford University

Summer Undergraduate Visitor (Artificial Intelligence, Machine Learning)

Palo Alto, CA

May 2023 - Aug 2023

GPA: 3.70/4.00

EXPERIENCE

Technical Team Lead - AI/LLM Engineering

Invent Penn State

State College, PA

Jan 2025 - Present

- Led development of **enterprise RAG** (Retrieval-Augmented Generation) system using **Google Gemini 1.5 Pro** LLM and **Vertex AI Search**, consulting with **1000+** researchers to deliver context-aware AI solutions
- Engineered advanced **prompt engineering framework** with **6 conversational categories** and behavioral conditioning, achieving intelligent response routing based on query type and user context
- Developed **intelligent data processing pipeline** using Gemini for advanced text preprocessing, **semantic search with vector embeddings**, and automated content quality assessment
- Architected **cloud-native solution on GCP** with **≤ 10 second response times** using Cloud Run (serverless), BigQuery (data warehouse), Firestore (NoSQL), Cloud Storage (object storage), and Vertex AI ecosystem

Research Assistant

RAISE Lab Pennsylvania State University

State College, PA

Aug 2024 - Present

- Presented **TRIM AI** research findings and collaborated with healthcare professionals to develop **AI-driven SMS triage system** for maternal health, improving diagnostic accuracy through **human & AI collaboration**
- Engineered **binary classification system** using **topic modeling (LDA)** and label overlap thresholds to identify labeling uncertainty in ambiguous message labels, processing **107,714+** SMS messages
- Streamlined data preprocessing pipeline with **50%+ processing time reduction** and visualized topic coherence using **Python LDA visualization tools** for human-in-the-loop systems

Team Lead and Machine Learning Intern

Nittany AI Advance

State College, PA

Nov 2024 - May 2025

- Communicated complex technical concepts and coordinated **cross-functional team** developing **Prototype Wizard**, an intelligent evaluation platform achieving **92% alignment with human evaluators** and cutting manual review time by **80%**
- Conducted comparative analysis and presented findings on **6+ large language models** (including **GPT-4o**) to stakeholders, facilitating informed decision-making across **zero-shot, one-shot, few-shot reasoning**, and **fine-tuning**
- Implemented automated **evaluation pipeline** with **Azure OpenAI's Tree-of-Thought framework**, streamlining assessment workflows through Microsoft Forms, Power Automate, and Azure Container Apps integration

PROJECTS

VibeVirtuoso (Python, OpenCV, MediaPipe, React, MongoDB, Google Gemini API, FluidSynth, Next.js) Mar 2025

- Built **gesture-controlled virtual instrument** platform with **94% gesture accuracy** and less than **50ms delay** using OpenCV and MediaPipe; won **Overall 2nd Prize at HackPSU**
- Integrated **Gemini API** for AI-generated music suggestions with React/Next.js UI and voice controls

AdSculptAI (Python, React, TypeScript, JavaScript, OpenAI API, ElevenLabs API, D-ID API, Cloudflare) Feb 2025

- Built **personalized AI-powered ad platform** automating video creation with **90% manual effort reduction** using **OpenAI, ElevenLabs, and D-ID APIs**
- Deployed on **Cloudflare Workers** with React & TypeScript frontend for custom ad previews

SKILLS

AI/ML: RAG, Prompt Engineering, Fine-tuning, Zero/Few-Shot Learning, TensorFlow, PyTorch, Scikit Learn, OpenCV, NLP, Deep Learning, Topic Modeling (LDA), Vector Embeddings, Tree-of-Thought

Cloud & DevOps: GCP (Cloud Run, BigQuery, Firestore, Vertex AI), Azure (AI Foundry, OpenAI, Container Apps), AWS, Docker, Firebase, Cloudflare Workers

Web Development: React, Node.js, FastAPI, Next.js, Spring Boot, Express.js, REST APIs, Android SDK

Data & Tools: Pandas, NumPy, MongoDB, Selenium, ETL Pipelines, LDA, MediaPipe, ElevenLabs/D-ID APIs