

# ARK DUTT

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## EDUCATION

### Bachelor of Science in Computer Science and Data Science

University of Wisconsin-Madison | Minor in Economic Analytics

August 2021 - May 2025

## TECHNICAL SKILLS

**Programming Languages:** JavaScript, Java, Python, R, C/C++, SQL, TypeScript, HTML/CSS, Swift

**Frameworks/Libraries:** Next.js, React.js, Node.js, Angular.js, Pandas, NumPy, Flask, Keras, TensorFlow, PyTorch, .NET, MindAR

**Databases and Tools:** MySQL, MongoDB, PostgreSQL, Docker, Kubernetes, GitHub, Postman, Nginx

**Concepts/Skills:** Multi-Agent Systems, Generative AI, Data Structures & Algorithms, Full Stack Development, REST APIs, Microservices

**Relevant Coursework:** Big Data, Computer Architecture, Discrete Math, Linear Algebra, Parallel & Throughput Programming

## WORK EXPERIENCE

### Fullstack Developer | Mountain House Media, Rochester, NY

August 2025 – Present

- Engineered **full-stack features** for a SaaS platform designed to help **creative professionals in media production** manage and track their ongoing projects, using **Next.js, Node.js, Express, and Python**; improved workflow efficiency by an estimated **30%**.
- Led the integration of **Generative AI capabilities**—including image and video generation, background removal, and upscaling—by developing and optimizing **Python-based microservices and APIs**, enhancing user productivity by **15%**.
- Collaborated with stakeholders** to define technical requirements, prioritize feature roadmaps, and mitigate delivery risks, ensuring the platform's development aligned with user needs and creative workflows.

### Software Developer | Wisconsin Center for Education Research, Madison, WI

February 2024 - June 2025

- Designed and deployed **data integration and reporting pipelines** using **C#, SQL Server, and AWS**, improving real-time access to over **500+ records** and automating ETL workflows.
- Wrote optimized **SQL queries and stored procedures** to enhance analytical reporting, reducing query execution time by **40%**.
- Collaborated with analysts and developers to enhance data integrity, logging, and system performance.

### Fullstack Developer | PBS Wisconsin, Madison, WI

September 2024 - January 2025

- Led a team of **5 developers** to build and deploy an AR app using **React.js, Flask, MySQL, and MindAR**, integrating **300+ historical portraits** and increasing user engagement by **20%** with a seamless 3D experience.
- Coordinated feature requirements with internal stakeholders** and translated them into technical specifications, ensuring alignment with organizational goals and maintaining **99.9% uptime** across platforms.

### Machine Learning Researcher | Informatics Skunkworks, Madison, WI

September 2024 - January 2025

- Built deep learning pipelines for processing **124+ RCC CT images** with **Python, PyTorch, and TensorFlow**, achieving a **5-10% improvement in AUC scores** and uncovering intra-patient similarities for predictive accuracy.
- Conducted **feature engineering, ETL, and SHAP-based analysis**, ensuring data integrity and explainability in ML pipelines.
- Automated data extraction and preprocessing workflows using **Python and SQL**, integrating heterogeneous medical datasets into a centralized **data warehouse** to streamline downstream model training and analysis.

### Software Engineering Intern | TrustedNation, Chicago, IL

May 2023 - August 2023

- Gathered requirements from internal teams** to redesign corporate website using Next.js, improving frontend performance by 25% and streamlining user experience for **200+ monthly users**.
- Communicated technical trade-offs** and migration strategies across teams, **reducing latency by 30%** while ensuring project goals were met.

### Student Technology Trainer | Software Training for Students, Madison, WI

November 2022 - January 2024

- Conducted over **100+ interactive workshops and individual sessions** on **Python, R, HTML, CSS, and JavaScript**, training **300+ students** and improving technical skill mastery rates by **75%** through practical, hands-on learning.
- Achieved an outstanding average instructor rating of **4.80/5** by delivering engaging, high-quality training sessions and creating comprehensive manuals, increasing course completion rates by **30%**.

## PROJECTS

### CodeBuddy | Python, LangChain, LangGraph, Streamlit, Groq (OpenAI-compatible) API, Pydantic

October 2025

- Built an **AI coding agent** that autonomously generates full-stack applications from natural language prompts, streamlining end-to-end development using Python, LangChain, LangGraph, and the open-source Groq API (**OpenAI-compatible**), achieving **90% task accuracy** across **25+ generated projects**.
- Developed a **Streamlit web interface and CLI tool** for dynamic, real-time code generation with secure file orchestration and Pydantic-based workflows, reducing build time to **under 45 seconds per project** and improving overall efficiency by **3X**.

### SpeakStudy | Headstarter AI Hackathon Finalist | Node.js, Express, LLM, APIs

August 2024

- Developed an **AI-powered website** with Node.js/Express, integrating **Gemini Pro 1.5 (LLM)** and **IBM Watson APIs**, handling **1000 interactions/month**.
- Enhanced learning accessibility by creating an **LLM-based interactive tool**, improving user engagement by **40%** and increasing retention by **30%**, fostering deeper learning outcomes.

## CERTIFICATIONS

- AWS Certified Cloud Practitioner, **AWS**
- AWS Certified Solutions Architect, **AWS**
- Machine Learning Specialization by DeepLearning.AI,