Sparsh Shrivastava

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Education

University of Michigan, BSE in Data Science — Aug 2023 - April 2027

- **Coursework:** Data Structures and Algorithms, Web Systems, Computer Organization, Applied Regression Analysis, Discrete Mathematics, Linear Algebra

Experience

Software Engineer Researcher, University of Michigan – Ann Arbor, MI — May 2025 - Present

- **Full-Stack Developer** for *Potato*, a data annotation tool used in *Blablablab* under Dr. David Jurgens to support large-scale NLP research
- **Integrated large language models (LLMs)** into *Potato* to assist with data annotation, resulting in a **40% increase in labeling speed** for supported NLP tasks
- **Developed an administrator dashboard** for monitoring and managing AI usage, providing insights into model performance, annotation efficiency, and user engagement with LLM-assisted workflows
- Designed tools within the admin panel to analyze LLM behavior and guide researchers on optimal usage, reducing model misuse and annotation errors by **over 25%**

Software Engineer Intern, Altair Engineering – Troy, MI — May 2024 – Aug 2024

- Developed a new backend component, **Unit Manager**, for Altair's simulation software *Inspire*, **used by thousands** of engineers worldwide
- Analyzed and optimized legacy expression-parsing C++ code, achieving a **20% reduction in runtime, 40% lower memory usage**, and vastly improved code readability and maintainability
- Engineered a **Python-based** Unit Manager leveraging the SymPy library, replacing a complex legacy system with a solution that was **2x faster** and significantly more modular
- **Eliminated key backend bottlenecks** in Inspire, resolving issues such as excessive memory overhead and unscalable expression handling logic

Projects

EasyCeipt | Vercel, Next.js, Python, Flask, Supabase (PostgreSQL)

- **Developed** a full-stack web application for logging club-related payments and annotating transaction details, designed for use by *local school district clubs*
- **Built** a custom receipt generator that lets users select and bundle multiple payments into a single, formatted **PDF receipt**

Insta485 | School Project | React, JavaScript, Flask, Python, SQLite, HTML/CSS, AWS EC2

- **Developed** a single-page social media web application using **React**, transforming a server-rendered site into a fully client-side dynamic experience
- **Implemented** core features such as post creation, likes, and user following with responsive, state-driven UI components consuming a **RESTful API**

Tax Calculator & ETF Predictor | Python, Pandas, NumPy, Scikit-Learn, Matplotlib, Kaggle

- **Designed** linear regression models to analyze historical market data and identify optimal buy/sell points for major indices (**DOW**, **NASDAQ**, **S&P 500**)

Technologies

Languages: C++, C, Python, Java, JavaScript, HTML/CSS, SQL, R
Frameworks/Tools: Git, Visual Studio, React, Next.js, Flask, SQLite, PostgreSQL, Arduino, Microsoft Office