Samarpan Mohanty

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Education

University of Nebraska–Lincoln **Lincoln, NE**
Bachelor of Science in Computer Engineering *2028*
Dean's List - Spring 2025

Technical Skills

Programming Languages: Python, JavaScript, C#, C, Java, SQL
Machine Learning & AI: TensorFlow, PyTorch, Scikit-learn, Keras, NumPy, Pandas, Deep Learning, Neural Networks, Graph Neural Networks, Natural Language Processing, Computer Vision, Data Analysis, TPOT
Web Technologies: React Native, Next.js, Node.js, Express, Flask, HTML/CSS, REST APIs, WebSocket, Firebase
Tools & Platforms: Git, Docker, Redis, Celery, Arduino, Raspberry Pi, ESP32, Streamlit, OpenAI API
Databases & Cloud: SQL, Firebase, Redis, AWS

Experience

PSE Bavarian Lab, University of Nebraska–Lincoln **Lincoln, NE**
Research Assistant — Machine Learning for Materials Science *Sep 2024–Present*
- Built TensorFlow/PyTorch and TPOT predictors for ionic conductivity, strengthening solid-state battery evaluation.
- Apply graph neural networks to crystal lattices to forecast properties for experimental screening.
- Ran NLP across **100+ papers** to extract variables/design rules; collaborated in a **5-member** team on Python/statistical analyses.

Dr. Razavi's Lab, University of Nebraska–Lincoln **Lincoln, NE**
Research Assistant — Biomedical Data Analysis *Nov 2024–Dec 2024*
- Trained models that raised lymphatic-flow prediction accuracy by **20%**; prepared and validated biological datasets with Python/Pandas.

Fellowships & Grants

2025–2026: **UCARE Research Fellowship**, University of Nebraska–Lincoln – Awarded $6,240 competitive research grant to conduct undergraduate research applying **machine learning** and **artificial intelligence** techniques to accelerate solid-state battery development

Projects

Molytics Python Library: **Technologies:** Python, TPOT, PyTorch, Scikit-learn, Flask, Redis, Celery, Next.js, **AWS (EC2, S3, RDS, Cognito, CloudFront, CloudWatch)**
- Built an automated ML pipeline with TPOT; achieved **up to 85% accuracy** for chemical-compound **property prediction and screening**, with performance **comparable to—and at times exceeding—preexisting deep-learning frameworks** on molecular analysis tasks.
- Celery/Redis jobs for long ML runs; cut manual analysis time by **90%**.
- Cloud setup: backend on **EC2**, data/artifacts in **S3**, **RDS** (PostgreSQL) for storage, **Cognito** for auth, **CloudFront** for the UI, basic **CloudWatch** monitoring.

Multiple ML/DL Projects Portfolio: **Technologies:** PyTorch, TensorFlow, Scikit-learn, Streamlit, NumPy, Pandas, torchvision
- **20+** end-to-end builds across CV, NLP, tabular, and generative tasks; typical accuracy **80–95%**.
- CNNs, LSTMs, transfer learning; e.g., **92%** image classification and **88%** text analysis.
  Repos: Deep-learning-Projects, Machine-Learning-Projects

Chat4fun Hackathon Project: **Technologies:** Node.js, Express, Socket.io, Firebase, HTML/CSS/JavaScript, **OpenAI (GPT) API**
- Real-time chat via WebSockets with sub-second latency and concurrent sessions.
- Firebase authentication and persistence; responsive UI. Repo: Chat4fun-Hackathon
- **2023:** Added bullying/NSFW filtering for text and images using GPT API plus keyword checks and a review queue.

AR/VR Web Browser Application: **Technologies:** Unity, C#, Android SDK, OpenGL, WebView
- Mobile VR browser that renders live web pages inside VR; smooth interaction on Android devices.
- Gaze/head-tracked selection with **95%** hit accuracy using dwell-time; added a bookmark panel and on-screen URL keyboard.

Publications & Manuscripts

Paul, B.[1]; **Mohanty, S.**[1]; Guo, H.[1]; Bavarian, M.[2*]. *LiClustCondAI: A Clustering-Based Ensemble Regression Framework for Generalizing Ionic Conductivity Predictions to Unseen Solid-State Electrolytes*. *Journal of Power Sources* — **under review**.

Mohanty, S.[1]; Paul, B.[1]; Guo, H.[1]; Bavarian, M.[2]. *Molytics: A Clustering-Based Ensemble Regression Framework for Generalizing Property Predictions to Unseen Materials*. **manuscript in preparation** (Target: *Nature Machine Intelligence*).

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Awards & Recognition

2024: **San Francisco Tech Summit (Fully Funded)**: Selected from **5000+ applicants** for exclusive technology leadership summit
2023: **$100 Best PCB Design Award**: Recognized for innovative high-efficiency printed circuit board layout
2021: **4th Place - Syntax v7.1 Hackathon**: Competitive placement among **100+ development teams** in app/web development
2020: **Google Code Certificate**: Successfully completed Google's advanced programming challenges