Himanshu Parida

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Education

- **Texas A&M University** — College Station, TX
  Master of Computer Science; GPA: 4.0/4.0 — *Aug 2025 – May 2027*
- **Indian Institute of Technology (IIT) Bhubaneswar** — Bhubaneswar, India
  Bachelor of Technology in Metallurgical and Materials Engineering; GPA: 3.81/4.0 — *Jul 2017 – May 2021*

Work Experience

- **Wolfram Research** — Bhubaneswar, India
  Application Developer — *Dec 2021 – June 2025*
  - **AI Math Assistant**: Architected LLM-powered microservices for a K-12 Math Assistant. Integrated **symbolic computation** with generative models to reduce hallucinations by **40%** and developed an automated **autograder** and dynamic **plot generator**.
  - **E-learning Application**: Designed and implemented an analytics backend to track user performance, boosting user engagement by **30%**. Developed an automated pipeline using **OpenAI GPT APIs** to restructure **4,000+** legacy question templates, eliminating manual engineering overhead.
  - **Search Infrastructure**: Optimized data retrieval by indexing **300,000+** unstructured records into **Elasticsearch**. Engineered custom **tokenizers, mappings, and analyzers** to improve search relevance for customer support system.
  - **Training Management System**: Engineered scalable CRUD modules and led the end-to-end migration of legacy data into **MS SQL Server**. Developed comprehensive technical documentation for internal APIs, streamlining onboarding for multiple enterprise clients.
  - **Technical Leadership**: Mentored 6 software developers through training, code reviews and technical unblocking. Reported **150+** critical bugs with effective workarounds, improving customer satisfaction and product reliability.
- **ICAMS – Ruhr-Universität Bochum** — Bochum, Germany
  Research Intern — *May 2020 – July 2020*
  - **Solidification Modelling**: Developed a C++ FDM model, resolving a critical issue impacting corrective flux accuracy to reduce simulation artifacts, and verified numerical accuracy through a convergence study.

Projects

- **Analog Error-Correcting Code (ECC) Robustness Prediction**: Designed a hybrid **Transformer–CNN** regression model to predict robustness (m-height) in ECC generator matrices. Implemented **set-based attention** for permutation invariance and **Squeeze-and-Excitation (SE)** blocks for hierarchical feature extraction, achieving a **42% log-loss improvement** over baseline MLP models.
- **Debiasing Credit Risk Assessment**: Fine-tuned a **Llama-2-7B** model using **LoRA** for financial risk evaluation. Implemented debiasing techniques across sensitive attributes, enhancing model fairness and robustness by over **20%** while maintaining high inference performance.
- **Telco Systems Churn Prediction**: Developed a customer churn prediction pipeline utilizing **SMOTE-NC** to address data imbalance. Evaluated performance across **logistic regression, SVM, KNN, decision trees, ensemble methods, and ANN**, achieving **80% accuracy** in identifying high-churn risk segments.

Technical Skills

- **Programming & Data Analytics**: Python, Wolfram, Pandas, NumPy, Seaborn, Matplotlib
- **Machine Learning & NLP**: PyTorch, TensorFlow, scikit-learn, statsmodels, NLTK
- **Databases, Tools & Platforms**: MySQL, MS SQL Server, FastAPI, Git, Elasticsearch, Postman

Publications

- **Solidification modelling of Fe-C alloy**: Himanshu Parida et al 2023 Comput. Mater. Sci. 224 112160
- **Flame image analysis**: Himanshu Parida et al 2020 IOP Conf. Ser.: Mater. Sci. Eng. 872 012078
- **Coal moisture & particle size determination**: Puneet Choudhary et al 2020 J. Min. Metall. A: Mining 56(1) 37-46