Nij Padariya

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EDUCATION

Year	Degree/Certificate	Institute	CPI/%
2023-Present	MTech/Computer Science & Engg.	Indian Institute of Technology, Kanpur	8.83/10
2018-2022	BE/Information & Technology	Gujarat Technological University, Ahmedabad	9.09/10
2017-2018	GSEB(XII)	Imperial Science School, Dhoraji	85.00%
2015-2016	GSEB(X)	Bhagyoday Academy, jashapar	83.33%

MTECH THESIS

Disease Surveillance and Forecasting (Thesis), Guide: Prof. Nisheeth Srivastava *(May'24 - Present)*

- Developed a prototype for forecasting U.S. cardiovascular mortality using **Bayesian hierarchical Linear regression**.
- Preprocessed data and explored modeling approaches, including **no pooling, complete pooling and partial pooling**.
- Trained the model on data from 2011-2017 and predicted mortality rates for 2018-2020, achieved **RMSE of 0.039**.
- Used **PyMC** for probabilistic inference, integrating global and local effects with **MCMC** sampling for posterior distribution.
- Working on forecasting the occurrence of various diseases and their cases across all districts of Uttar Pradesh.

PROJECTS

- **LearnWithSensei: Where Wisdom Meets Learning** | Self Project | ⭘ *(Jun'24 - Present)*
  - Designed and Implemented an **interactive e-learning platform** with seamless **course browsing**, purchasing, and secure payment gateways for reliable transactions.
  - Developed **instructor tools** for course management, including video uploads, editing, and content deletion, while supporting **user interaction** through likes, comments, and discussions.

- **IPL Data Visualization** (CS661) | Course Project | Guide: Prof. Soumya Dutta | ⭘ *(Jan'24 - Apr'24)*
  - Conducted IPL data analysis from **2008 to 2023**, uncovering key insights using Python, Pandas, and Plotly.
  - Analyzed IPL team performance across seasons, individual contributions, and comparing player metrics to highlight trends.
  - Developed a **custom algorithm** to select the top 11 players for a fantasy team based on recent performance.

- **Text Summarization on Indian Language** (CS689) | Course Project | Guide: Prof. Arnab Bhattacharya | ⭘ *(Feb'24-Apr'24)*
  - Implemented a **multilingual summarization** pipeline using **IndicTrans** and **fine-tuned Pegasus** on the SAMSUM dataset, boosting performance by **15%**.
  - Evaluated **Hindi summarization** using mT5, IndicBART, TF-IDF, and rule-based methods, **IndicBART** outperformed the first pipeline by **19%** in **cosine similarity** and ROUGE followed by TF-IDF, rule-based approaches, and mT5.

- **NLP Techniques on Indian Languages** (CS689) | Course Project | Guide: Prof. Arnab Bhattacharya | ⭘ *(Jan'24 - Apr'24)*
  - **Tokenized** a Gujarati corpus using **BPE, mBERT, and IndicBERT**, implemented **Unicode corrections**, fine-tuned IndicBERT and IndicNER for **NER tasks** using the Naamapadam corpus, with **IndicNER** achieving a **21% improvement** in **macro-F1 score** over **IndicBERT**.
  - Analyzed **translation quality** between English and Indian languages, with **IndicTrans** performing **4% better** than **NLLB-200** and **32% more** accurately than **ChatGPT** based on **BLEU scores**.

- **Smart Agriculture Solution** (CS724) | Course Project | Guide: Prof. Amitangshu Pal | ⭘ *(Aug'23 - Nov'23)*
  - Developed an Agricultural Smart Solution that provides **real-time soil data** and precise **nutrient control** via a **soil monitoring app** and an **Arduino-based system**.
  - The Arduino system controls nutrient supply via **pumps**, guided by **moisture and NPK sensors** to optimize soil condition.

TECHNICAL SKILLS

- **Languages**: C, Java, JavaScript, Python
- **Web/Libraries/Utilities**: Express.js, React, Node.js, Plotly, Scikit-Learn, NLTK, spaCy, PyMC
- **Relevant Courses**: Data Structures, Analysis and Design of Algorithms, Introduction to Machine Learning, Big Data Visual Analytics, Operating Systems and Virtualization, Object Oriented Programming-I, Computer Networks, Database Management Systems

ACHIEVEMENTS AND EXTRA CURRICULAR ACTIVITIES

- Secured **All India Rank 339 in GATE CS 2023**, among 75,680 candidates appeared for the examination. *(Mar'23)* 📄
- **Web Development and Designing Intern, The Sparks Foundation:** Gained experience in crafting user interfaces and integrating backend processes during the internship. *(May'21 - Jun'21)* 📄

POSITIONS OF RESPONSIBILITY

- **Teaching Assistant, IIT Kanpur:** Fundamentals of Computing (ESC111/112)