

EDUCATIONAL QUALIFICATIONS

PROGRAM	INSTITUTION	CGPA/%	COMPLETION
B.Tech. in Electrical Engineering	Indian Institute of Technology, Madras	9.42/10	2023

ACHIEVEMENTS

- Represented IIT Madras at the Inter IIT Tech Meet 9.0 and won a **gold medal** in the DL hackathon
- Ranked **1st** out of 200+ participants, in the Subex AI Hackathon and was awarded a **cash prize of 45k**
- Secured **All India Rank 341**(Top 0.02%) in JEE Advanced 2019 conducted by IITs
- Scored **perfect SAT score** of 2400 in SAT 2018 subjects test (Math, Physics and Chemistry)
- Secured a Score in Top 10% in National Standard Examination in Physics conducted by IAPT (2019)

PUBLICATIONS

[1] Perturbation CheckLists for Evaluating NLG Evaluation Metrics [ArXiv]

Ananya B. Sai, **Tanay Dixit**, Dev Sheth, Sreyas Mohan and Mitesh M. Khapra
Empirical Methods in Natural Language Processing (**EMNLP**), 2021.

RESEARCH EXPERIENCE

Undergraduate Researcher

(Jan 2021- Sept 2021)

Guide: [Prof. Mitesh Khapra](#) | Robert Bosch Center for Data Science | IIT Madras

- Performed an extensive study on the **robustness** of the current NLG metrics across 6 different tasks.
- Designed **criteria checkList** templates to highlight some pitfalls in current NLG metrics.
- Identified the strengths and weakness of SoTA task specific pre-trained metrics.
- Proposed a novel **framework** for better design of evaluation metrics - paper published at **EMNLP 2021**

Collaborative Research

(Aug 2021)

- Collaborated on the **NL-Augmenter** workshop by designing data augmentations & filtering techniques
- Contributed 31 tasks to the **AllenAI-natural instructions** in Commonsense Reasoning and Style transfer
- To be included as co-author in both the benchmark papers with analysis & results.

PROFESSIONAL EXPERIENCE

Machine Learning Intern

(June 2021- July 2021)

Mentor: [Shashank Shekhar](#) | Subex AI Lab | Bangalore

- Developed an end2end system for automating the invoice verification process using Deep Learning.
- Designed an OCR pipeline using Tesseract for extracting text from invoices
- Implemented a **document layout recognition** model by leveraging jointly trained vision&language models

Data Analyst Intern

(Dec 2020-Jan 2021)

Mentor: [Tanmany Chaturvedi](#) | BlueBarrel Solutions | Houston, Texas

- Analysed **10 million+** energy consumption data points, mined patterns to recommend power suppliers.
- Developed an **Interactive Dashboard** using Flask & plotly and reduced EDA time by 40%
- Worked on **Hypothesis Tests** to understand customers HVAC(Heating Ventilation & Cooling) usage

TECHNICAL SKILLS

Languages & Tools

Python, C/C++, SQL, Git, L^AT_EX

Libraries

TensorFlow, Pytorch, HuggingFace, NumPy, Scikit-learn, seaborn, plotly

Operating Systems

Linux, Windows

KEY PROJECTS

Multilingual Text Classification and Headline Generation

(March 2021- April 2021)

Winning solution for the Bridge2i Hackathon at Inter IIT Tech Meet 9.0 | [Github](#)

- Developed a unique and scalable multilingual based text classification and summarization pipeline
- Designed a unique phoneme based **kim-CNN** architecture for sub-domain text classification.
- Fine-tuned mBART model for improved accuracy on low resource languages like *Hinglish*
- Reduced inference time by an **order of magnitude** & improved **robustness** by adding latent mixing layers

NLP with Deep Learning

(Nov 2020- Jan 2021)

CS224n course assignments and projects | [Github](#)

- Trained a NMT model using seq2seq architecture and improved it with **multiplicative attention**
- Implemented a open vocabulary NMT system (Luong and Manning, 2016)
- Worked on Improving model **BERT** performance on **SQuAD 2.0** by adding co-attention layers

Driver Monitoring System

(June 2020- Nov 2020)

Guide: Prof Nirav Bhatt | Analytics Club | Center for Innovation | IIT Madras

- Built a driver monitoring system to identify rash driving patterns using telemetry data
- Trained an event detection model using **XGBoost** and achieved accuracy of 89%
- Designed a **time series** classification model by modifying the **WaveNet** model and achieved 94 % AUC
- Developed an dashboard using Streamlit to analyse our results on **online data**

Analysis of Recommendation Systems

(May 2020- Jun 2020)

Guide : Aniket Patil | vRhythms Software Pvt Ltd

- Worked in a team of 4 to analyse recommendation algorithms performance on ranking metrics
- Used real world data set (more than half a **million** purchases) of Amazon products.
- **Optimized** collaborative filtering & **matrix factorization** performance on ranking metrics by 22%
- Analyzed models performance against popularity bias & **cold start** issue using novelty/coverage metrics

KEY COURSES

Courses	Deep Learning for NLP(CS224n) ¹ , Reinforcement Learning ² , Information Theory ² , Data Base Management Systems, Numerical Methods in C, Principle of Economics
Mathematics	Probability, Statistics & Stochastic Process, Linear Algebra II, Series & Matrices, Functions of Several Variables(Calculus)
Labs	Applied Programming lab, Microprocessors Lab, Digital Systems Lab

POSITIONS OF RESPONSIBILITY

Head | Analytics Club | IIT Madras

(April 2021-Present)

- **Leading** a team of 8 coordinators & 100+ members to run one of the most reputed clubs in the institute
- **Mentoring** 2 industrial projects in AI and conducting various **sessions** on topics related to ML
- Collaborating with Univ.ai for the Geoffrey Hinton fellowship program to encourage students to explore AI
- Assisting social campaigns like *She Can* (led by Shastra IIT Madras) to encourage women in STEM

EXTRACURRICULAR ACTIVITIES

- **Mentoring** 6 freshman undergraduates for their academics , extracurricular and mental well being
- Sports Activities
 - Conducted **Tennis** mentorship sessions for UG and PG students
 - Member of Inter -Hostel Tennis Schroeter team

¹Stanford Online

²Ongoing