NEEL BHANDARI

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EDUCATION

Carnegie Mellon University   Pittsburgh, PA
M.S. in Machine Learning and NLP (MIIS), Language Technologies Institute   *Aug. 2024 - Dec. 2025*
Coursework (Ongoing): Introduction to Machine Learning, Advanced NLP, On-Device Machine Learning.

R.V. College of Engineering   Bangalore, India
B.Tech in Computer Science and Engineering, GPA: 8.63/10   *Aug. 2018-Sept. 2022*

WORK EXPERIENCE

Machine Learning Scientist   Aug 2022- July 2024
PayPal Inc.   *Bangalore, India*
- Spearheaded research and development behind the first automated Root Cause Identification tool at PayPal, which promised to reduce root cause analysis time by over **75%**.
- Developed, trained and tested language models on proprietary data along with use-case specific metrics for the first LLM-based PayPal Assistant chatbot.
- Led experimentation and testing through fine-tuning and prompt engineering to develop a customer-centric personalisation feature, aimed at solving account specific questions for consumers.

Machine Learning Intern   April 2022 - July 2022
PayPal Inc.   *Bangalore, India*
- Developed a proof-of-concept Root Cause Identification tool focused on automated extraction of problem statements and root causes from unstructured chat transcripts.
- Experimented and integrated several techniques such as question-answering, summarisation and cluster-based modelling to create a robust pipeline.

RESEARCH PROJECTS

Investigating and Mitigating Hallucinations in RAG systems   Aug. 2020 – June 2021
Graduate Research Student, Advised by Prof. Maarten Sap   *Pittsburgh, PA*
- Developing a systematic approach to analyze origin points and effects of hallucinations across Retrieval-Augmented Generation (RAG) system components, with a specific focus on various types of knowledge conflicts.
- Formulating synthetic data generation methods to enhance robustness in RAG pipelines.

Aya Open Science Project [1]   Jan. 2023 - April 2024
Member of Core Research Team, Cohere For AI Community   *Remote*
- Led experimentation and design on quality estimation and human-led pruning of multilingual datasets to understand the impact of data quality on model performance.
- Engineered the development of the data processing pipeline for diverse multilingual datasets, reducing the caching time from several days down to hours.

Robustness of Text-Based Adversarial Attacks [2] [3]   June 2021 - Mar. 2022
External Research Student, MIT-IBM Watson AI Lab   *Remote*
- Collaborated with Dr. Pin-Yu Chen on studying robustness of text-based adversarial attacks from a multilingual lens
- Designed and developed a novel attack-agnostic algorithm that showcased significant improvement in robustness over existing attacks in a round-trip translation setting.

SELECTED PUBLICATIONS

1. Ahmet Üstün, Viraat Aryabumi, ... , **Neel Bhandari** et. al. **Aya Model: An Instruction Finetuned Open-Access Multilingual Language Model**, *ACL 2024* - **Best Paper**

2. **Neel Bhandari**, Pin-Yu Chen. **Lost In Translation: Generating Adversarial Examples Robust to Round-Trip Translation (Full Paper)**, *ICASSP 2023.*

3. **Neel Bhandari**, Pin-Yu Chen. **Lost In Translation: Generating Adversarial Examples Robust to Round-Trip Translation**, *Workshop on Socially Responsible Machine Learning, ICLR,2022.*

SKILLS

- **Programming Languages & Libraries**: Python; C++; SQL; NumPy; Pandas; PyTorch; Tensorflow; Scikit-learn