

# Piyush Vyas

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## SUMMARY

Experienced Senior Machine Learning Scientist with expertise in ML research (NLP & Speech), mentoring teams, and deploying ML models in production.

## EXPERIENCE

### Senior Machine Learning Scientist

Spectrum Labs, Inc.

Oct 2021 – Apr 2023

Remote, US

- **Mentored** a team of **Junior/Senior Data Scientists, ML Engineers, and Interns**, providing guidance on ML best practices and code reviews.
- Conducted **ML research** to enhance **Text and Voice Chat Moderation solutions**.
- Pretrained and fine-tuned **LLMs** on proprietary data, resulting in a **9%** improvement in **PR-AUC**.
- Deployed ML models in **real-time** using **ONNX Runtime, Gradio, FastAPI, and Docker**.
- **Built a multi-modal (Text + Audio) ML toolkit** based on PyTorch that serves both ML research and model iterations
- Spearheaded the building, testing, and deployment of the **Voice Chat Moderation MVP**, working closely with cross-functional teams to ensure successful implementation.

### Research Intern (NLP)

Comcast Applied AI

Aug 2021 – Oct 2021

Remote, US

- Reduced the **WER** by a relative **30%** for the **Automatic Speech Recognition** engine powering Comcast's X1 entertainment system by incorporating the state-of-the-art wav2vec 2.0 model.
- Collaborated with a team of ML scientists and research engineers to optimize the performance of the engine.

### Research Assistant

Indiana University Bloomington

May 2020 – Oct 2021

Remote, US

- Conducted data crowd-sourcing using **Amazon Mechanical Turk** and conducted experiments on **Speech Assessment** using **PyTorch**

## PUBLICATIONS

- R. Tang, K. Kumar, J. Xin, **P. Vyas**, et al., "Temporal Early Exiting for Streaming Speech Commands Recognition," *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, 2022, pp. 7567-7571
- **P. Vyas**, A. Kuznetsova, and D. Williamson, "Optimally Encoding Inductive Biases into the Transformer Improves End-to-End Speech Translation," in Proc. INTERSPEECH, 2021, pp. 2287-2291 (**Best Student Paper Award**)
- Z. Zhang, **P. Vyas**, X. Dong and D. S. Williamson, "An End-To-End Non-Intrusive Model for Subjective and Objective Real-World Speech Assessment Using a Multi-Task Framework," *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, 2021, pp. 316-320 (**Outstanding Student Paper Award**)

## EDUCATION

### Master of Science in Intelligent Systems Engineering

Indiana University

2020

Bloomington, IN

### Bachelor of Commerce & Post-Graduate Diploma in Computer Application

Devi Ahilya Vishwavidyalaya

2018

Indore, INDIA

## TECHNICAL SKILLS

<b>ML Packages</b>	PyTorch, ONNX, TensorRT, HuggingFace, Hydra, WandB, JAX, TensorFlow, scikit-learn
<b>Software Dev</b>	Gradio, FastAPI, Git, Docker
<b>Cloud</b>	AWS, GCP
<b>Languages</b>	Python, SQL