Tejes Srivastava

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Applied/Research Scientist, Machine Learning Engineer

**PROFESSIONAL EXPERIENCE**

**Lawrence Livermore National Laboratory,** Livermore, CA ***Machine Learning Researcher* |** June 2024 – Present

* Designed and implemented a **production-ready HuggingFace Transformer client** within Microsoft's Autogen framework for scalable **multi-agent LLM interactions**, enabling advanced **generative AI** applications
* Developed **robust evaluation benchmarks** for **large language models (LLMs)**, enhancing reliability in **real-time inference** scenarios
* Evaluated 13 LLMs using curated datasets to ensure robust performance in safety-critical domains

**Carnegie Mellon University,** Pittsburgh, PA

***Speech Processing Student Researcher* |** June 2023 – March 2024

* Self Supervised Learning Models: Devised a method called Efficient Fusion of Self Supervised Learning Models (EFFUSE) for End to End (E2E) models which yielded an average decrease of 16% in inference time for fusion based models
* Formulated the prediction module of EFFUSE to leverage the results of multiple fine-tuned SSL models while improving inference efficiency
* FLEURS dataset: Achieved State of the Art (SOTA) results over the FLEURS dataset, a multilingual benchmark, with a transformer-based model showing a 20% decrease in character error rates
* Paper accepted at **Interspeech 2024** and won the **Best Paper Award** out of ~900 papers

**UC Davis,** Davis, CA

***ML and Optimization Student Researcher* |** June 2021 – Nov 2022

* Manifolds: Reformulated the K-means problem as an optimization problem in terms of Manifolds and found a relaxation of the problem more viable than previously defined notions of manifold optimization
* Sparce PCA: Analyzed the effect of the weight of the constraints of the developed algorithm via Sparce PCA, which was used to solve the relaxation, to determine the accuracy of the procedure
* RADMM: Optimized the proposed RADMM algorithm to outperform than the ManPG algorithm to yield state of the art (SOTA) results
* Developed the codes for testing the algorithm using the manifold library in Python
* Journal Paper accepted to **Mathematics of Operations Research, 2024**

**Vimaan Robotics,** San Jose, CA  
***Software Engineering Intern* |** June 2020 – September 2020

* Apache Airflow: Successfully migrated company from cron jobs to an Apache Airflow system for for drone mission transfer workflow in warehouse management decreasing scheduling time and RAM usage
* Automation: Developed a plugin for the company to monitor the drone processes in the morning and sent logs automatically to specific groups depending on incompletion of the process
* Predicted barcode locations on Deep Neural Nets using Tensorflow to speed up drone processes in the warehouse

**SELECTED PUBLICATIONS**

* **EFFUSE: Efficient Self-Supervised Feature Fusion for E2E ASR in Low Resource and Multilingual Scenarios**Tejes Srivastava, Jiatong Shi, William Chen, Shinji Watanabe  
  *Interspeech Conference, 2024*
* **Speech Recognition for Analysis of Police Radio Communication**Tejes Srivastava, Ju-Chieh Chou, Priyank Shroff, Karen Livescu, Christopher Graziul  
  *IEEE Spoken Language Technology Workshop, 2024*
* **ESPnet-Codec: Comprehensive Training and Evaluation of Neural Codecs for Audio, Music, and Speech**Jiatong Shi, Jinchuan Tian, Yihan Wu, Jee-weon Jung, Jia Qi Yip, et al.  
  *IEEE Spoken Language Technology Workshop, 2024*
* **Hypothesis Generation with Large Language Models**Yangqiaoyu Zhou, Haokun Liu, Tejes Srivastava, Hongyuan Mei, Chenhao Tan  
  *EMNLP Workshop NLP4Science, 2024*
* **A Riemannian ADMM**Jiaxiang Li, Shiqian Ma, Tejes Srivastava  
  *Mathematics of Operations Research, 2024*

**TECHNICAL SKILLS**

Machine Learning/AI: PyTorch, TensorFlow, HuggingFace Transformers, ESPnet, scikit-learn, Keras  
Programming Languages: Python, C++, MATLAB  
Data Science: NumPy, SciPy, Pandas, NLTK  
Databases: SQL, MongoDB

**SELECTED AWARDS & HONORS**

* Best Paper Award, Interspeech 2024
* Student Spotlight in Mathematics, UC Davis (2022)

**EDUCATION**

**University of Chicago, Chicago, IL —** *M.S. in Computer Science (Natural Language & Speech Processing)*, Expected 2024  
*Advisor: Prof. Chenhao Tan*

**University of California, Davis, Davis, CA —** *B.S. in Computer Science & Mathematics*, 2019 – 2022, GPA: 3.98/4.00