Pavan Seshadri

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Education

Georgia Institute of Technology Atlanta, GA

B.S. in Computer Science, Minor in Music Technology *Aug 2017 – Aug 2021*

- Coursework: Machine Learning (CS 4641), Algorithms Honors (CS 3511), Deep Learning (CS 4803), Robotics and Perception (CS 3630), Computer Graphics (CS 3451), Statistics and Applications (ISYE 3770), Applied Combinatorics (MATH 3012), Recording and Mixing (MUSI 4630)

Publications

Improving Music Performance Assessment with Contrastive Learning

Pavan Seshadri, Alexander Lerch

Proceedings of the International Society for Music Information Retrieval Conference (ISMIR) , 2021

- Contrastive loss based neural networks are able to exceed SoTA performance for automatic music performance assessment (MPA) regression tasks by learning a better clustered latent space.

AVASpeech-SMAD: A Strongly Labelled Speech And Music Activity Detection Dataset With Label Co-Occurrence

Yun-Ning Hung, Karn Watcharasupat, Chih-Wei Wu, Iroro Orife, Kelian Li, **Pavan Seshadri**, Junyoung Lee

Late Breaking Demos of the International Society for Music Information Retrieval Conference (ISMIR) , 2021

- We propose a dataset, AVASpeech-SMAD, which provides frame-level music labels for the existing AVASpeech dataset, originally consisting of 45 hours of audio and speech activity labels.

Work Experience

Amazon Aug 2021 - Present

Software Development Engineer I *Seattle, WA*

- Engineer in the product knowledge classification research group
- Worked on enabling new model architectures within large scale ML inference systems
- Working on automating end-to-end model deployment for new marketplaces, including data generation, training, and evaluation

Georgia Tech Center For Music Technology Jan 2020 – May 2021

Research Assistant under Dr. Alexander Lerch *Atlanta, GA*

- Researched deep learning based methods for automatic music performance assessment (MPA)
- Investigated the generalizability of DNNs for MPA on instruments outside of its training set
- Authored a conference paper published in ISMIR 2021 detailing contrastive learning for MPA regression tasks

Amazon May 2020 – Aug 2020

Software Development Engineer Intern *Seattle, WA*

- Designed and built an automatic evaluation feature in a deep neural network training pipeline to support product classification
- Feature leverages AWS lambda, EMR, S3, and Spark to reduce applied scientist effort from 45-75 hours to minutes.

Georgia Tech School of Biomedical Engineering Aug 2018 – May 2019

Research Assistant under Dr. Rudy Gleason *Atlanta, GA*

- Worked on an iOS based tool to determine pregnancy risks from scanned 3D models of patients, currently deployed in Ethiopia
- Implemented gradient analysis techniques to classify human anatomy on 3D models using MATLAB

Projects

Deep Learning (CS 4803) Final Project Mar 2021 – May 2021

- Extended the work of Gururangan et. al, which showed benefits of pre-training NLP models for specific tasks/domains and Pfeiffer et. al, which proposes AdapterHub, a framework for NLP transfomer model compression
- Ran experiments and evaluated using AdapterHub to pre-train RoBERTa on domain and task specific data for text classification

Media Streaming Discord Bot May 2020 – Present

- Developed a bot to scrape user requested audio from YouTube and stream in voice channels
- As an experiment, scraped 90K+ chat messages and fine tuned RoBERTa on the dataset to predict the message author

Technical Skills

Areas: Computer Audition, Natural Language Processing, Deep Learning, Signal Processing, Software Engineering
Languages: Python, Java, C/C++, Bash, MATLAB
Developer Tools: Git, Vim, Docker
Libraries/Frameworks: PyTorch, Amazon Web Services, Pandas, Numpy, Scipy, Matplotlib, librosa, pySpark

Musical Activities

Independent Songwriter/Composer Jan 2020 – Present

- Write, record, produce, and mix songs for personal artist project and occasional collaborations
- Contributed background music to student indie games

Georgia Tech Pep Band Jan 2019 – May 2019

- Mellophone Player in GT Pep Band for various basketball games

Musical Skills

Areas: Songwriting/Composition, Music Production, Recording, Mixing
Programs: Ableton Live, Max/MSP, Musescore, Audacity
Instruments: Piano/Keyboards, Guitar, Clarinet, Mellophone, Drum Programming/Sampler, Voice
Genres: Pop, RnB, Hip Hop, Alternative, Video Game BGM

Awards

3rd place @ GT Junior Design Expo Dec 2020

- Worked in a team of 5 to create a central hub application for community news and event planning

President's Undergraduate Research Award Aug 2020

- Awarded funding by GT UROP to conduct research on evaluating the generalizability of DNNs for MPA on instruments outside of its training set in the Fall 2020 semester

Deans List Aug 2018 - May 2020

- Attained Deans List standing for Fall 2018, Spring 2019, and Spring 2020 semesters