STEVEN HILLIS

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EDUCATION

Carnegie Mellon University: School of Computer Science Pittsburgh, PA *December 2019*

Master of Science in **Intelligent Information Systems** GPA: 3.69/4.33

Southeast Missouri State University Cape Girardeau, MO *May 2018*

Bachelor of Science in **Computer Science** and **Economics** GPA: 3.90/4.00

EXPERIENCE

Hyperia, Machine Learning Engineer Denver, CO *January 2020 – December 2020*

- Trained a res2net model with domain augmentation and margin loss, applied to a speaker diarization feature based on a fusion of unsupervised clustering outputs for measurably robust speaker separation
- Iteratively bootstrapped Jasper 10x5 ASR model on freely available and increasingly diverse data
- Designed a tool converting written text into flawed, speech-like text to produce sufficient conversational data for finetuning a transformer model on error correction and contextualization of ASR output
- Leveraged a prompting approach with GPT-3 followed by a finetuned T5 model for producing structured, well-formed, suitably abstractive transcript summaries with acceptable balance of coverage and fluency

Federal Reserve Bank of Cleveland, Data Science Intern Pittsburgh, PA *Summer 2019*

- Instituted a robust and efficient data pipeline from complex tables to pandas dataframes using MySQL queries
- Constructed data-driven hierarchical lexicon for financial domain from word embeddings and TF-IDF statistics
- Imposed dynamic KMeans clusters on corpus segments to visualize topics using PCA and TSNE

NISC, Software Development Intern Lake St. Louis, MO *Summers 2016, 2017*

- Produced preference swap feature enhancement in Java within enterprise software codebase, maintaining responsibility from conception to production merge within team's Agile development framework
- Implemented SPAs in AngularJS using CSS and Java REST services, harnessing with unit and integration tests

PROJECTS

Defenses for Adversarial Attacks on ASR Neural Networks Carnegie Mellon: Capstone *Fall 2019*

- Extended IBM's Adversarial Robustness Toolbox to handle speech models: Listen-Attend-Spell, DeepSpeech2
- Developed novel defenses for underserved speech and text domains against new and existing attacks

Multimodal, Multilingual Grapheme-to-Phoneme Conversion Carnegie Mellon: Course *Spring 2019*

- Introduced state-of-the-art multilingual neural grapheme-to-phoneme model for low-resource languages, leveraging an auxiliary audio modality during training without introducing dependency during inference
- Accepted: DeepLo 2019

Facial Image Classification and Verification Carnegie Mellon: Course *Spring 2019*

- Performed multiclass classification over augmented facial images using a modified ShuffleNetV2 architecture
- Adapted the model for facial verification, generating cosine distance similarity scores from facial embeddings

Speech to Speech Translation for Unwritten Languages Carnegie Mellon: Research *Spring 2019*

- Evaluated four unsupervised representations of speech data on downstream BLEU to determine optimal intermediate for languages without stable writing systems in the traditional speech-to-speech pipeline
- Published: Interspeech 2019

SKILLS

Programming Languages: Python, Java, SQL, C++, Perl, JavaScript, C#, C

Python Tools: Pytorch, NumPy, Hugging Face, pandas, NLTK, Gensim, scikit-learn, wandb, TensorBoard, Tensorflow

DevOps Tools: Git, Docker, Kubernetes, Jenkins, Flask, microservices, CI/CD; AWS S3, EC2, SageMaker; Google Colab