Sunwoo Park

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Education

Georgia Institute of Technology — Atlanta, GA
Bachelor of Science in Computer Science – GPA: 3.8/4.0 (Highest Honors) — *Aug. 2021 – Dec. 2024*

Experience

Artificial Intelligence Innovations Intern — June 2023 – May 2024
Delta Air Lines — *Atlanta, GA*

- Fine-tuned several W2V-BERT 2.0 models for per-language speech-to-text across 7 primary languages, halving inference latency on existing development hardware and cutting server inference costs by an estimated 30%.
- Developed offline and on-device speech transcription and translation pipeline resulting in 6x speed up when processing real-time audio by integrating OpenAI's Whisper and Google's ML Kit models on CoreML and Swift.
- Performed technical evaluations on state-of-the-art sensor technologies from several startups to optimize aircraft de-icing processes, potentially resulting in multi-billion dollar annual savings industry-wide.

Full Stack Developer Intern — Nov. 2022 – Jan. 2023
Eachday — *Pittsburgh, PA (Remote)*

- Developed mobile application in Flutter from Figma wireframes, working closely with the design team to prioritize and scope 15 core features for the initial product launch.
- Architected a serverless backend in AWS (S3, Glue, Athena, Grafana) that supported big data analytics for an estimated 1,000 daily users, leading to a 30% reduction in operational costs and a 2x increase in processing speeds.

Research & Development Intern — May 2022 – July 2022
Pentabreed — *Seoul, South Korea*

- Developed and deployed a full-stack MERN application for automated NFT art generation and batch minting across multiple blockchains for up to 10,000 NFTs as a part of the blockchain R&D team.

Research

Student Researcher for "Accelerating Materials Discovery with AI" Project — Jan. 2024 – Dec. 2024
Georgia Tech VIP Program in collaboration with Fung Group — *Atlanta, GA*

- Researched the use of diffusion crystal structure prediction models in a novel active learning framework to generate atomic structures from spectroscopic data, yielding successful results for simple molecules.
- Performed batch hyperparameter search on the Equiformers-v2 model for increased performance on the QM9 challenge for material science discovery, achieving 48% decrease in test error from base parameters.

Student Researcher for "FishStalkers" Project — Jan. 2023 – May 2023
Georgia Tech VIP Program in collaboration with McGrath Lab — *Atlanta, GA*

- Trained and fine-tuned a YOLOv5 OBB model on a bespoke dataset of Lake Malawi cichilids to autonomously track the mating behavior improving precision, recall, and F1 scores by over 150%.

Projects

TagLalwizyan: POS Tagging for Endangered Creole | *Python, PyTorch, HuggingFace* — Dec. 2024

- Annotated a dataset of over 200 sentences whilst developing a novel tagset tailored to the unique grammatical features of the critically endangered Louisiana Creole.
- Performed statistical evaluations of three POS tagging approaches (bidirectional LSTM, fine-tuned BERT, and transfer learning with CamemBERT), establishing a baseline for future NLP research regarding Louisiana Creole and highlighting the potential of transfer learning in low-resource languages.

In-Context Learning with Context Distillation on Llama3 | *Python, PyTorch, HuggingFace* — May 2024

- Evaluted the use of In-Context Learning alongside Context Distillation as a means of improving a text summarization task without expensive fine-tuning, achieving marginal but promising improvements in ROUGE metrics.

Technical Skills

Languages: Python, Java, JavaScript ES6, TypeScript, HTML/CSS, Dart, Swift, C/C++, Bash
Frameworks: React, Node.js, Express, TailwindCSS, CoreML, Flutter, SwiftUI, FastAPI
Developer Tools: Git, VSCode, Postman, AWS, Vim/NeoVim, Linux (Arch or Debian-based), Slurm, Nginx, Figma
Libraries: PyTorch, HuggingFace, Pandas, NumPy, Matplotlib, Coqui TTS