

# Ju Young (Justin) Yang

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Aspiring AI Researcher committed to pushing the boundaries on innovation through technology.

Strong understanding in computer science fundamentals, and demonstrated ability in research process, experimental data analysis, and cross-functional collaboration and communication.

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## Duke University — B.S Computer Science

*graduated December 2023*

**Relevant Coursework:** Database Systems, Design/Analysis of Algorithms, Intro to AI, Data Structures and Algorithms, Computer Systems, Server Side Web Applications, iOS Mobile App Development, Discrete Math

### Skills:

Languages	Python, SQL, Java, C, Javascript, Typescript, Ruby, Swift
Frameworks & Libraries	Pytorch, Tensorflow, Pandas, OpenAI, Flask, React, Next.js, Node.js, Express
ML & AI	Regression, Clustering, Classification, Transformer, Markov Models, Reinforcement Learning
Database	MongoDB, PostgreSQL, XML, SQLAlchemy
Tools & Platforms	Git, AWS, Docker, OAuth2.0, Shell (Bash/Unix)

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## EXPERIENCE

### Research Assistant, ColAI

*Jan 2024 - Current*

- ▶ Implementing advanced methodologies to enhance the efficiency and extend the context length of Transformer models.
- ▶ Organizing internal meetings to devise and integrate diverse architectural frameworks, including RetNet, Mamba, and RoPE.

### ML Researcher, POZAlabs

*May 2023 - August 2023*

- ▶ Performed invitational research on music generation task implementing fine-level dynamics.
- ▶ Conducted exploratory data analysis and observed success rate of 80% on valence mood classification task using Support Vector Machine. Accepted to AAAI 2023.

### ML Engineering Intern, POZAlabs

*May 2022 - August 2022*

Seoul, Republic of Korea

- ▶ Spearheaded ablation study for paper published in NeurIPS 2022 (ComMU: A Dataset for Combinatorial Music Generation) to investigate the effect of 'Track-Role' metadata in combinatorial music generation; evaluated its distinctiveness compared to human composed samples through Amazon Mturk involving 100+ composers.
- ▶ Led company-wide meetings with cross-functional agenda and developed internal commodity templates for a streamlined knowledge sharing across the organization.

### Defense Communication Systems Specialist, Korea Army Headquarters

*June 2020 - December 2021*

Republic of Korea

- ▶ Managed wire and IP/TCP systems to ensure seamless inter-departmental communication between Army, Navy, and Air Force.

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## PUBLICATION

### MID-FiLD: MIDI Dataset for Fine-Level Dynamics (AAAI 2023)

*August 2023*

*Symbolic Music Generation, SVM*

- ▶ Developed and evaluated MIDI dataset tailored for music generation for fine-level dynamic control. Trained Transformer model with dataset annotated with 4 meta-data including CC#1 of modulation wheel.

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## PROJECTS

### Not Uber

*November 2023*

*Python, Graph Theory, Search Algorithms*

- ▶ Simulated a ride-sharing service modeling Manhattan with a graph-based model (50,000 nodes, 2,000 passengers, and 200 drivers) and conducted runtime analysis and desire-data assessment.
- ▶ Achieved linear-time matching strategy using event-driven decision algorithms: A\*, Dijkstra's, Floyd-Warshall.

### Earth Street Journal

*October 2023*

*Flask, MongoDB, Fine-tuning, Beautiful Soup*

- ▶ Developed web-application to enhance accessibility of environmental news through web scraping and structured summarization.
- ▶ Fine-tuned GPT model with tailored training and validation dataset to enhance data consistency and summarization quality.

### Bulk Buy Buddies

*October 2023*

*Next.js, Flask, MongoDB, Google Maps API*

- ▶ Crafted web-application to simplify bulk purchase decisions by matching Costco customers who wish to split purchased items.
- ▶ Incorporated custom backend API with Next.js frontend and implemented Google Maps API for location-specific services.