Jeongsik Park

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Educations

University of Southern California (Expected) May 2026
Master of Science, Computer Science (Artificial Intelligence Specialization) Los Angeles, CA

University of Texas at Dallas (UTD) May 2024
Bachelor of Science, Computer Science – GPA: 3.94/4.0 Richardson, TX

Work Experiences

Human Language Technology Research Institute Aug. 2022 - Present
Research Intern (Advisor: Dr. Vincent Ng) Richardson, TX

- **MemeIntent: Benchmarking Intent Description Generation for Memes**
J Park*, KPN Nguyen*, T Li, S Shrestha, MK Vu, JY Wang, and V Ng *Equal contribution
Published in *Proceedings of the 25th Annual Meeting of the Special Interest Group on Discourse and Dialogue (SIGdial 2024)* [Paper]
  - Developed the first benchmark dataset for computational meme interpretation, introducing novel annotations such as author intention, background knowledge (BK), and meme description.
  - Designed and implemented pipelines integrating Large Language Models (LLMs) and Large Vision Language Models (LVLMs), combining human-annotated or synthetically generated BK, resulting in 43% improvement in entailment performance over non-BK retrieval systems.

- **MemeInterpret: Towards An All-in-one Dataset for Meme Understanding**
KPN Nguyen*, J Park*, J Park, M Kim, J Lee, JW Choi, K Ganta, PA Kasu, R Sarakinti, S Vipperla, S Sathanapalli, N Vaghani, and V Ng *Equal contribution
Submitted to *ACL Rolling Review (ARR) December 2024 Cycle* (Preferred Venue: *ACL 2025*)
  - Developed the first comprehensive dataset unifying categorization, interpretation, and explanation tasks for computational meme understanding.
  - Recruited and managed team of 13 annotators, implementing three-stage Collect-Edit-Judge process to ensure high-quality and diverse annotations. Developed annotation interface and generated synthetic data from LLMs, reducing annotation time by 70%.
  - Conducted experiments with fine-tuned Language Models, LLMs, and LVLMs using varying inputs, demonstrating mutual benefits across three tasks.
  - Achieved 91.5% performance improvement in interpretation, 8.5% enhancement in explanation, and competitive results using smaller models for categorization over state-of-the-art (SOTA) models.

- **Active Learning for Hate Speech Detection**
J Park, and V Ng
Manuscript Prepared (Available upon request)
  - Proposed active learning approach to address topic dependency in hate speech detection on social media platforms.
  - Conducted comprehensive data analysis of topic-specific variations in hashtags and class-informative tokens across years, uncovering and discussing significant shifts in patterns.
  - Demonstrated superior performance of active-learning over SOTA passive-learning while achieving 90% reduction in annotation costs.

Technical Skills

Programming Language - Python, SQL, C, C++, Java, Shell

Library & Framework - PyTorch, TensorFlow, Pandas, NumPy, Scikit-Learn, Matplotlib, NLTK, LaTeX

DevOps - Linux, CI/CD, Git, YAML, CONDA, Docker, AWS, Flask, FastAPI

Reviewer

International Conference on Acoustics, Speech, and Signal Processing (ICASSP)' 2025

Academic Projects

Korean Association - Webpage for Korean students at UTD. Developed React-based front-end with secure user authentication, increasing engagement among 100+ users.

Fintech UTD - Platform for real-time personal financial statement access and automated investment management. Enhanced front-end functionality and implemented additional user authentication methods.

Slide Analysis - Academic slide analysis system leveraging LLMs. Developed lecture slide OCR, keyword extraction, and summarization system aligned with user preferences.

Food Recommendation - Menu selection system that extracts users' circumstances from their diaries, such as emotions and weather. Crawled and pre-processed food document data from search engines. Engineered recommendation system using TF-IDF cosine similarity between food data tokens and user-written diary tokens.

Motion Game - Flappy Bird-inspired game integrating physical activity and real-time motion tracking. Analyzed gameplay data and implemented stage recommendation algorithms.

Pigeon Removal Machine - Machine for detecting and deterring pigeons using lasers to avoid bird strike. Built Arduino-based system and crawled bird image data for image classification, and trained pigeon classification model. Won 1st place in hackathon.

Restaurant Ordering Service - End-to-end restaurant ordering and payment service. Prototyped Android app for QR code scanning, food ordering, and payment processing. Won 1st place in startup idea contest and received the Excellence in Creativity Award at ISCC hosted by IACST.

Self-driving Rescue Boat - Arduino-powered self-driving boat for rescuing drowning individuals. Programmed Arduino and prototyped Android app. Achieved 2nd place in startup contest.

Consulting Service - Consultation reservation web service for college students and faculty. Preprocessed data, designed SQL database, and connected it to JSP using JDBC.

CIFAR-10 - Image classification. Explored and analyzed impact of data augmentation techniques, initialization methods, and skip connections using AlexNet on CIFAR-10 image classification.

DS (Part of Data Science course) - Developed data analysis and visualization pipelines for global happiness indices and COVID-19 trends using Tableau, and automated web data scraping using BeautifulSoup.

ML (Part of ML course) - Developed models and algorithms including SVMs, logistic regression, k-means, Gaussian Mixture Models, neural networks, PCA, decision trees, AdaBoost, and EM algorithm from scratch, for tasks such as classification, clustering, and dimensionality reduction.

AI '24 (Part of AI '24 course) - Implemented AI techniques, including Genetic Algorithms for 3D TSP, Minimax with alpha-beta pruning and Q-Learning for Go (Little-Go), and POMDP-based temporal reasoning for state prediction and speech recognition.

AI '23 (Part of AI '23 course) - Implemented search algorithms (DFS, BFS, UCS, A), CSP solvers with forward checking and heuristics, resolution-based theorem prover, and heuristic-based Pacman agent for optimized pathfinding and food collection.

AI '22 (Part of AI '22 course) - Developed and implemented machine learning and deep learning models, including SVM, neural networks, LSTM, CNN, GAN, and XAI, for diverse applications such as prediction, image segmentation, transfer learning, and explainable AI.

PL (Part of Programming Language course) - Designed programming languages with BNF grammar and operational semantics for controlling robotic claw, implemented AI strategies for card games in Racket and Prolog, and developed advanced AI decision-making algorithms on efficiency and optimal play.

Leadership Experiences

IntelliChoice (Volunteer) Sep. 2022 - Present
Branch Manager, Math Tutor, and Machine Learning Engineer Plano, TX & Los Angeles, CA

- Organized math tutoring sessions for disadvantaged children every Saturday for 2 hours at local public library. Established and managed two new branches, recruiting and mentoring 40+ tutors and supporting 100+ students.
- Taught AP Linear Algebra, Calculus and Statistics to 10+ K-12 students.
- Developing RAG-based tutor chatbot for organization's website, enabling personalized interactions and lecture recommendations for 1,200+ students. Implementing automated analysis reports to track and enhance students' learning progress.

UTD Sep. 2023 - Dec. 2023
Project Coordinator Richardson, TX

- Designed and evaluated 2-phase machine learning project (in *CS4375.HON; Intro. to ML, Honors*).
- Phase 1 (Annotation): Presented detailed guidelines, managed data collection, and aggregated 7,105-entry dataset.
- Phase 2 (Classification): Designed multiple-choice question-answering (QA) task, choosing human-annotated text over 3 LLM-generated synthetic text.

Human Language Technology Research Institute Jun. 2023 - Oct. 2023
K-12 and Undergraduate Students Research Mentor Richardson, TX

- Led 4 high school juniors in research program, resulting in co-authorship of research paper.
- Supported 5 undergrads' in resolving technical machine learning challenges during NSF summer research program. Tasks included implementing LLMs for text generation, CNN and LSTM for motion analysis, and TFR-BERT and SVM for search engine development.

28th Basic Training Center, Republic of Korea Army Jul. 2019 - Feb. 2021
Drill Assistant Instructor Gyeonggi-do, Republic of Korea

- Trained 2,000+ recruits in military training, barrack life, and teamwork. Received commendation for exemplary leadership and outstanding performance during training operations.
- Served as squad leader, counselor, and barber for full-time soldiers.

Presentations

[Oral]

- **Center for Machine Learning and Language Processing Lab Mixer**, UTD, Nov. 2023
- **Summer Platform for Undergrad Research Symposium**, UTD, Jul. 2023

[Poster]

- **SIGdial**, Kyoto, Japan, Sep. 2024
- **Summer Platform for Undergrad Research Symposium**, UTD, Jul. 2023
- **International Student Creativity Challenge, International Association for Convergence Science & Technology (IACST)**, Shaoxing, China, Nov. 2018

Honors and Awards

[Awards]

- 2024 **Jonsson School Undergraduate Research Award**, UTD - $500
- 2023 **Undergraduate Research Apprenticeship Program**, UTD - $4,500
- 2020 **Certificate of Commendation**, Republic of Korea Army - Excellence Award
- 2019 **Consumer Electronics Show 2019**, Kyungpook National University (KNU) - Travel Grant
- 2018 **StartUp Project Contest**, KNU - 2nd place
- 2018 **International Student Creativity Challenge**, IACST - Excellence Award & Travel Grant
- 2018 **StartUp Idea Contest**, KNU - 1st place
- 2018 **Hackathon SkillUp Software Contest**, KNU - 1st place
- 2018 **Silicon Valley AI Training Program**, KNU - Travel Grant

[Scholarships]

- 2022-2024 **International Study**, KNU - $10,000
- 2018-2023 **National Science & Engineering**, Korea Student Aid Foundation - $18,500
- 2023 **Gil Lee Undergraduate**, UTD - $2,000
- 2023 **Alumni Endowed**, UTD - $1,400
- 2023 **Amelia A. Lundell**, UTD - $1,000
- 2018, 2021 **Interdisciplinary Education**, KNU - $3,200
- 2018 **Prime Outstanding**, KNU - $1,000
- 2018 **Young Talent**, KNU - $500