Sungjoon Park

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EDUCATION

Columbia University *BA, Computer Science* **Exp. May 2026**

- **Activities:** VP @ CU Hiking Club, CORE Product Management Fellow GPA: 3.9
- **Coursework:** Machine Learning, Neural Networks and Deep Learning, Natural Language Processing, Intro to Databases

EXPERIENCE

Computer Science Department, Columbia University **New York, NY**

Teaching Assistant – Machine Learning (Spring '26), Discrete Math (Spring-Fall '25) Jan 2025 – Present

- Held recitations and hosted weekly office hours, guiding students through challenging concepts
- Developed clear grading guidelines for AI-assisted homework evaluation, cutting TA re-correction workload by 20%

CAiSEY **New York, NY**

Member of Dev Team – Next.js, Prisma, PostgreSQL Sep – Dec 2025

- Built front-end UX and full-stack infrastructure for an AI voice-learning platform used by 3K+ Business School students; developed React + tRPC interfaces, real-time voice pipelines, and state-driven submission workflows with OpenAI Realtime API
- Rescued an end-to-end TypeScript submission pipeline (React / tRPC / Prisma), modularizing an 800-line monolith into a maintainable submission pipeline with testable functions, layered state-machine logic, and type-safe Zod schemas
- Prototyped prompt-evaluation pipelines and student submission evaluation workflows, building language-graph–based learning journeys and side-by-side model comparisons to refine conversational learning outcomes

Plii, Inc. **New York, NY**

Software Engineering Intern – React, TypeScript, Next.js Mar – Aug 2025

- Built front-end UX/backend infra for a parenting social network app; developed auth API routes and user data ingestion pipelines
- Engineered a Firebase + JWT auth system with proactive token refresh and anonymous fallback, enabling seamless login, automatic session recovery, and a 70% drop in login failures
- Implemented real-time notifications across iOS and mobile web using Capacitor, APNs, and Firebase Cloud Messaging to eliminate need for client-side manual refresh, cutting average response time for event invites by 35%
- Integrated assistant-ui with GraphQL + OpenAI to enable real-time scheduling tools and interactive workflows; reduced multi-day scheduling time by 50%

LEAP, NSF Science & Technology Center **New York, NY**

Data & Compute Intern May 2025 – Sep 2025

- Streamlined onboarding with a clear, step-by-step JupyterLab guide for 2i2c Server; boosted access for 120+ researchers and cut support needs by 30%
- Leveraged open-source ETL tools (e.g., Pangeo Forge) to ingest climate datasets into cloud-based Zarr format, supporting reproducible workflows for 10+ research groups across LEAP
- Authored intuitive VSCode Remote-SSH + Docker setup guides that cut environment setup time by 60% for first-time users

RESEARCH PROJECTS

Neologism Learning as a Param-Efficient Alternative to Fine-Tuning for Model Steering [arxiv] Nov – Dec 2025

- Trained a neologism ("~kidmode") on 1030 tuples (prompt, positive response, negative response) using APO-up preference loss on Mistral-7B to encourage intuition-based explanations. When compared to LoRA FT performance, neologism learning performed comparably in concept adherence and better in response length despite smaller trainable parameter size

Kolmogorov-Arnold Networks for Compact Speech Signal Disentanglement [paper] Apr – May 2025

- Designed compact KAN-ConvTasNet architectures for speech separation on the DiPCo corpus to achieve 2.22 dB SI-SNRi with <6K parameters and <0.03 MB model size – matching ConvTasNet baseline performance in heavily overlapped speech segments

30 Years of NMME Model Skill in Forecasting ENSO Onset [poster] May – Dec 2024

- Analyzed seasonal bias trends in Niño 3.4 Region sea surface temperatures using Python and North American Multi-Model Ensemble hindcasts; Presented findings at *American Geophysical Union* and manuscript under review at *Atmospheric Research*

TECHNICAL SKILLS

- **Programming Languages:** TypeScript/JavaScript, Python, Java, C/C++, SQL, Bash, JSON, Go
- **Tools/Frameworks:** Node.js, React, PostgreSQL, GraphQL, Tailwind, Prisma ORM, Next.js, Airtable
- **Infrastructure:** Google Cloud Storage, Firebase, Vercel, Docker, JupyterHub, GitHub Actions
- **ML/LLMs:** Pytorch, Transformer Models, Reinforcement Learning, Neologism Learning, Parameter-efficient Fine Tuning