

Seung Hyun Jin

984-317-4648 | seunghyun.jinpark@duke.edu | [LinkedIn](#)

EDUCATION

Duke University

Durham, NC

BS in Computer Science & Statistical Science

May 2027

- Database Systems, Data Structures and Algorithms, Applied Machine Learning, AI Protein Design

EXPERIENCE

BioDevices Engineering Intern

May 2025 – August 2025

Zoetis

Durham, North Carolina

- Architected end-to-end NLP pipeline using fine-tuned Flan-T5 with LoRA adaptation and RAG integration
- Integrated vector search and conversational AI to deliver solutions with data retrieval and workflow automation
- Optimized a domain-specific LLM using PEFT techniques, mixed-precision training, and gradient checkpointing
- Deployed solutions to AWS environments with automated data collection workflows

Software Engineer

August 2023 – Ongoing

Lunch Bunch LLC

Durham, North Carolina

- Orchestrated microservices architecture with containerized Docker deployment across Azure Kubernetes Service clusters, implementing CI/CD pipelines with automated testing and zero-downtime rolling updates
- Engineered real-time analytics dashboard processing 10K+ concurrent user sessions using Redis caching, PostgreSQL optimization, and React.js with WebSocket integration for live traffic monitoring
- Implemented scalable REST APIs with Node.js and Express.js, integrating third-party payment gateways (Stripe, PayPal) and authentication systems with JWT tokens and OAuth 2.0 protocols
- Optimized application performance through lazy loading, code splitting, and CDN integration with AWS CloudFront, achieving 40% reduction in load times and 99.9% uptime SLA compliance

Research Assistant

January 2024 – Ongoing

Pratt School of Engineering

Durham, North Carolina

- Performed data exploration and analysis across 1M+ cellular datasets using SQL queries and Python scripting
- Pioneered ensemble techniques achieving 81% accuracy for multicellular structure identification in 265K+ spatial-omics samples
- Devised statistical methods to uncover spatial relationships across datasets for tissue architecture understanding
- Developed algorithmic approach for cross-organ cellular mapping, revealing transitional zones

PROJECTS

Mechanical Failure Analysis

- Developed ML pipeline using fine-tuned models and RAG to automate mechanical failure analysis, achieving 80% solution accuracy and 50% reduction in troubleshooting time
- Implemented NLP system with PyTorch, Hugging Face, and FAISS vectors to process data and generate contextualized repair solutions through LoRA tuning
- Deployed AI bot via Microsoft Teams integration enabling real-time responses to failure queries

TriCen

- Engineered mental health crisis intervention system preventing caller abandonment through AI conversation
- Developed integration between Twilio API and LLM to deliver responsive, empathetic AI interactions
- Implemented real-time speech-to-text transcription with optimized chunking to maintain natural conversation flow
- Created operator dashboard displaying conversation summaries and transcripts for handoffs while preserving caller privacy

Hierarchical Tissue Unit Annotation

- Used Unsupervised ML models for statistical analysis of cell neighborhoods in colon and intestinal tissues
- Processed and segmented large-scale microscopic datasets using automated Python scripts
- Designed and trained neural networks to process and identify spatial patterns across 1M+ pixels

TECHNICAL SKILLS

Programming Languages: Python, SQL, TypeScript/JavaScript, Java, C, C++, Linux, Bash, Shell

Technologies: Unix, GitHub, React.js, Node.js, PostgreSQL, MySQL, AWS, Azure, Docker, Kubernetes, Redis, WebSocket, REST APIs, CI/CD, Pandas, PyTorch, Scikit-Learn, TensorFlow