Lisa Baek

248-525-7647 | seo_hyun_baek@brown.edu | https://www.linkedin.com/in/lisa-baek-113a89206/ |
https://github.com/seolibek

Education

Brown University Providence, RI

Bachelor of Science in Applied Math - Computer Science *Aug. 2022 – May 2026*

Relevant Coursework: Analysis of Algorithms, Data Structures, Operating Systems, Algorithmic Machine Learning

Teaching Assistant: Multi-variable Calculus, Partial & Ordinary Differential Equations, Computer Vision, Algorithmic Theory

Activities: Hack@Brown, Association of Women in Mathematics, Applied Math Department of Undergraduates

Experience

Software Engineer, Investment Systems June 2025 – August 2025

Brown University *New York, New York*

- Built scalable onboarding infrastructure for Real Estate Securities, handling 500+ deals and underwriting models with full-stack tools and Pydantic validation to maintain >99% data accuracy.
- Reduced deal onboarding time by 99.7% by automating manual Excel workflows, implementing queryable database uploads, and collaborating with stakeholders to design scalable UI layers for 10,000+ future records.

Undergraduate Researcher Jun 2024 - Aug 2024

Tufts University *Medford, MA*

- Enhanced a machine learning model (CRU-FM) to handle missing and irregular medical data from the MIMIC dataset (50,000+ patient records), optimizing the data pipeline to improve prediction accuracy.
- Performed regression analyses, including linear and ridge regression, on CRU-FM results against five baseline models to identify top factors impacting model performance.

Undergraduate Researcher Jun 2023 – Aug 2023

ICERM *Providence, RI*

- Collaborated with faculty and undergraduates, applying advancements in DNA self-assembly and graph theoretical concepts to model 3D structures in 2D.
- Leveraged linear algebra and k-regular graph properties to develop tighter bounds, reducing the upper bound by 25% for specific graph formations.

Projects

Hack@Brown Hackathon — *Python, Docker, APIs* Sep 2024 – Present

- Led a web development workshop for a 500-person hackathon, teaching React and HTML/CSS with interactive, hands-on examples.

GeoLDM — *Python, PyTorch, Git* Mar 2024 – May 2024

- Designed a generative model inspired by the Latent Diffusion Model to generate ground-level imagery conditioned on satellite data.
- Implemented a variational autoencoder for geographic data processing and developed interpolation techniques for feature extraction.
- Conducted ablation studies with Classifier-Free Guidance to improve the realism of generated imagery.

Technical Skills

Languages: Java, Python, C, MATLAB, R, SQL (Postgres), JavaScript, HTML/CSS
Tools & Frameworks: React, FastAPI, Docker, Git, PostgreSQL, Pandas, NumPy, Postman, Swagger UI, JSON, Jira, Confluence, Lucidchart
Certifications: AWS Certified Cloud Practitioner