Chan Um

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EDUCATION

Purdue University West Lafayette, IN

B.S. in Computer Science concentrating on Machine Intelligence, Minor in Mathematics Aug 2020 - May 2026 (Expected)

Relevant Coursework: Data Structures & Algorithms, Systems Programming, Data Mining & Machine Learning

- **Honors & Development:** Dean's List (Fall 2023 – Present); CodePath Intro to Technical Interview Prep certificate (Summer 2025)

EXPERIENCE

Johns Hopkins University - Ahn Lab Baltimore, MD

Student Researcher May 2025 – Present

- Analyzed and visualized cancer organoid movement images under treatment conditions (Ixazomib, DMSO, Dinaciclib), generating detailed heatmaps, histograms, and polar maps to interpret cell alignment
- Developing a cheminformatics machine learning model capable of identifying potential drug candidates based on biomarker input, significantly enhancing precision medicine approaches

Kiahara Lab West Lafayette, IN

Undergraduate Researcher Mar 2025 – Present

- Developed a web server application for PPF, Phylo-PFP, and ESG using Python (Flask) for backend development and JavaScript (React.js) for frontend interactions
- Collaborated with graduate students to translate biological research needs into user-friendly software solutions

Purdue University Korean Association West Lafayette, IN

Webmaster Team Quality Assurance Jan 2024 – Dec 2024

- Conducted pre-deployment testing of web features, documented detailed test cases, and streamlined QA processes, significantly reducing production bugs and accelerating developer response times.
- Improved user experience (UX) by identifying, documenting, and addressing critical usability issues.

Republic of Korea Army Daejeon, South Korea

Motor Transport Operator Aug 2021 – Feb 2023

- Completed 18 months of military service, coordinating logistical operations for a team of 50+ personnel; enhanced leadership, teamwork, and strategic planning skills.

PROJECTS

Lab Experiment Tracker (React, Flask, SQLAlchemy, SQLite) Nov 2025

- Developed a full-stack web application to centralize and streamline the tracking and analysis of laboratory experiments, replacing inefficient spreadsheet-based methods
- Designed and implemented the core relational database schema in SQLAlchemy, establishing the data model for experiments, researchers, and results

Image Super-Resolution Converter (Pytorch) Oct 2025

- Implemented a Super-Resolution Residual Network (SRResNet) to perform 2x image upscaling, optimized by enabling bfloat16 (BF16) automatic mixed precision
- Trained the model using L1 loss to produce sharper, more realistic image reconstructions compared to traditional MSE loss.

Optimal Pathfinding System (C++, Dijsktra's & Floyd-Warshall Algorithms) Apr 2025

- Developed a pathfinding application in C++ to identify the fastest and most cost-effective route between jump gates and systems, ensuring optimal performance under specified constraints
- Implemented Dijkstra's algorithm to compute the shortest travel time and integrated the Floyd-Warshall algorithm to determine minimal distance paths between every pair of gates

Social Media Platform, Project Leader (Java) May 2024

- Led a team of four in designing, developing, and deploying a responsive social media application under strict feature constraints

INVOLVEMENT

- Social Media Manager - Purdue Korean Association
- Member - Purdue Astronomy Club, ACM, Korean-American Scientists and Engineers Association

TECHNICAL SKILLS

Programming Languages: Java, Python, R, MATLAB, C/C++, JavaScript, HTML/CSS, Perl, SQLite
Frameworks: FastAPI, Flask, TensorFlow, Scikit-learn, PyTorch
Tools and Technologies: React, Git/Github, IntelliJ, VS Code, RStudio, Blender, Jupyter Notebook