Juheon (John) Chu

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EDUCATION

Dickinson College **Carlisle, PA, USA**
Bachelor of Science in **Computer Science and Mathematics** Expected December 2023
Cumulative GPA: 3.79/4.0; *Major GPA (Computer Science)*: 3.95/4.00; *(Mathematics)*: 3.86/4.00
Relevant Courses: Linear Algebra, Theoretical Foundations in Computer Science, Database Systems, Data Mining, Large-Scale Open Source Software Development, Analysis of Algorithms, Operating Systems, Computer Organization & Architecture, Senior Seminar, Deep Learning Specialization, Real Analysis, Abstract Algebra

HONORS & AWARDS

- The Forrest E. Craver Memorial Prize in Mathematics: Awarded to a junior student excelling in mathematics.
- Dean's List (5 Semesters)

SKILLS

Programming Languages: Java, Python, C/C++, JavaScript, SQL, HTML5, CSS, CUDA, Mosel
Software & Machine Learning: MySQL, GitHub, Linux, Pytorch, TensorFlow, NVIDIA, Transformers, AWS, Docker
Certifications: Certified Scrum Master (*Scrum Alliance*)
Languages: English (SAT Score: 1400/1600), Korean (Native)

WORK EXPERIENCE

Dickinson College **Carlisle, Pennsylvania**
Quantitative Reasoning Associate **August 2022 – Present**
- Organized weekly office hours for CS and Math courses: Theoretical Foundations of CS and introductory calculus.
- Guided students in test-taking and notetaking strategies by prioritizing assignments and studying for exams.
- Conducted 3-4 exam review sessions for students to prepare for the mid-term and final exams.
- Participated in weekly meetings with the course instructor to assist with course direction decisions.

Computer Science Teaching Assistant **August 2022 – Present**
- Assisted in the design and implementation of Java projects and the use of integrated development environments.
- Tutored 4-6 students weekly on Object Oriented Programming, Data Structures, and algorithm concepts.
- Prepared multiple implementations of a laboratory project in the introductory-level CS course throughout the week.
- Provided timely and frequent feedback to students for improving their code efficiencies.

Reeplayer **Culver City, California**
Software Engineer Intern **May 2022 – August 2022**
- Implemented 4 state-of-the-art video resolution services by providing **NVIDIA Maxine** real-time AI visual effects.
- Reduced video camera noise by 80% and encoding artifacts by 55% with **CUDA C/C++** to provide end-user utilities.
- Automated code coverage from 60% to 80% by modularizing Data Access Objects in Junit tests for camera functionalities.
- Analyzed the optical flow of object movements in 30 soccer videos with aim of predicting the trajectory of soccer players.

DNB **Goyang-si, South Korea**
Full-Stack Software Engineer Intern
- Revamped working process to save 8+ hours per week by modularizing program codes with the **Spring MVC** framework.
- Developed and maintained 40+ end-user services of websites managing 6+ databases in **MySQL** workbench.
- Designed a user-friendly brochure site using **HTML**, **CSS**, and **JavaScript**, resulting in a 15% increase in monthly profits.

RESEARCH EXPERIENCE

Dickinson First Year Seminar (FYS) Assignment **May 2022 – Present**
- Succeeded independent student-faculty collaborative research on Decision Science with Professor Dick Forrester.
- Authored a **Python** program with Gurobi solver to assign 660+ Dickinson freshmen to 42+ seminars.
- Accomplished balancing gender and student type ratios by 85% in FYS classes maintaining 16+ course capacities.
- Automates to parse the student data file given by Dickinson College to be loaded into the Student Assignment program.

PROJECTS

COVID-19 Infection Estimation
- Built a deep-learning model that estimates the infection rate of COVID-19 by scanning 740 CT scans of the chest.
- Predicted the COVID-19 infection rate with 64% accuracy utilizing the **Pytorch** Deep Learning library.

Hugging's Transformers Open-Source Development
- Coauthored 2 Pull Requests that are merged resolving "good first issues" tickets in Hugging's Transformers.
- Coordinated with 3-4 senior open-source administrators to debug gigantic **Pytorch** and **Tensorflow** codebases.

Albert Q&A System
- Designed a Question-Answering with the pre-trained ALBERT model, using **Pytorch**, **Tensorflow,** and **Transformers**.
- Achieved answering the question with 78% of accuracy subject to a given context.

Fake News Detector
- Implemented an LSTM model that detects fake news by observing the total weight matrix size of the LSTM training data.
- Created a pipeline that computes 3-dimensional LSTM by producing 2-dimensional LSTM output in tensor.

Object Detection and Tracking
- Optimized video to operate CSRT object detection and tracking algorithm and attain 50% faster loading speed.
- Utilized Haar Cascade with **Python OpenCV** to detect multi-objects in images by representing pixel values 0.0 to 1.0.

Butcher Operating System (OS) Kernel
- Demonstrated 16-bit operating system capable of concurrent execution of 8+ open source OS prompt commands.
- Established a file I/O system by incorporating a pipeline that links 4+ software to the disk image, using **C/C++** and **Bash**.

Pokemon Database
- Designed a dynamic website to interact with 6 database tables and show relational details of 230+ Pokemon features.
- Utilized **MySQL** and **JDBC** to construct 6 Singleton Data Access Objects and connect to 20+ backend services.

The One Korea
- Designed a responsive franchise-launch website to assign unique URLs to future franchisees.
- Extracted 12+ Spring dependencies to implement 16 UX/UI services for 3 targets (headquarter, franchise, customer).

Nike Model Design
- Developed a user-friendly shopping mall capable of 8+ UX/UI services to serve as a working example of NIKE.
- Utilized **MySQL**, **jQuery**, **AJAX**, and **JSP Servlet** to fetch dynamic data and graphics from 40+ HTTP web servers.

CAMPUS INVOLVEMENT

Major's Committee (CS & Math): Interacted actively with the Department Chair to provide constructive feedback on the performances of faculty members.

Chess Club Member Engaged in weekly chess club activities as a member of the chess club.

Club Soccer Member Participated in weekly club soccer activities as a goalkeeper.

PUBLICATION

Patent **February 2015 - June 2016**
- Published the Patent KR101626932B1 to maintain the flooring materials uncontaminated during the fabrication process.

MILITARY SERVICE

SGT, USAG Casey APO, AP 96224 Republic of Korea **July 2018 - April 2020**
- Held command, control, and administrative responsibilities for 7 KATUSA soldiers belonging to the U.S. Army units.
- Handled tank management, maintenance, advisory, and live-round training for strengthening U.S-ROK alliance forces.

PROFESSIONAL REFERENCE

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