

## Derek Kwon

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Personal website: <https://dereks-portfolio.netlify.app/>

### Education

**William and Mary** | Williamsburg, VA

**Graduated December 2024**

Bachelor of Science in Computer Science

GPA: 3.6, Dean's List for Spring 2022, Fall 2023, Spring 2024, Fall 2024

**Relevant Coursework:** Web Programming, Intro to Software Development, Cyber & Information Security Management, Intro to Game Development, Computer Graphics, Computer Organization, Reinforcement Learning

**Campus Activity:** W&M Game Development Club: Member

**2023 – 2024**

### Skills/Proficiencies

General Skills: Version Control with Git, Object-oriented design, Software design methodologies, collaborative development, reinforcement learning models, SQL, Azure cloud databases, Linux

Programming Languages: JavaScript, TypeScript, Python, Java, C#, C++, R

Game Dev Skills: Unity game engine, Blender, Software architecture for games, pixel art

Web Dev Skills: NodeJS + ExpressJS, ReactJS, HTML, CSS

Cybersecurity Skills: Linux CLI, Secure development lifecycle, secure server configuration, network scanning, penetration testing, Kali Linux, Metasploit

Languages: Korean (fluent)

### Experience

**Content Data Specialist Intern** | Tesla Government | Falls Church VA

**June 2023 – August 2023**

- Gained security training in handling classified information (FOUO, PII, CUI) to learn how to maintain confidentiality of company data
- Wrote Python scripts to automate cleaning, filtering, and reformatting of maritime data so that it could be properly displayed on maps on company's information sharing site
- Hack-a-thon: Collaborated on a machine learning model to assign tags to foreign relations articles and won 2nd place in a company-wide hack-a-thon
- Data Visualization Competition: Used RStudio to make bubble plot visualizations for African foreign relations data in a fun competition that the company used to gather visualizations for Africa
- Scraped data from both English and Korean online sources using Selenium and BeautifulSoup and put the data into structured data tables to add to company's information on North Korea

**Data Intern** | MacDowell Law Group | Fairfax VA

**August 2024 – September 2024**

- Used natural language processing and regular expressions in python to reformat large excel spreadsheets
- Identified company vulnerabilities by identifying differences within data sheets
- Helped consult regarding a potential 3rd party software vendor interested in adding their AI chatbot to the firm's website

**Leadership Intern** | Camp Invention | Haymarket VA

**June 2018 & 2019**

- Mentored young students through STEM-related projects, fostering creativity and teamwork

### Projects

**Personal Project: Solo Developed Game**

- Developing a game solo using Unity game engine and Blender modeling software
- Familiarizing myself with Unity Debugger to pinpoint errors in code
- Gaining a much better understanding of object-oriented development and good software architecture
- Game focus is on exploring beautiful underwater environments and advanced enemy AI

### Personal Website

- Learned HTML, CSS, and JavaScript to build a personal website from scratch
- Understood importance of good HTML structure
- Mastered CSS positioning with flexbox and grid

**Game Development Group Project: Cat-aclysm**

- Collaborated with 3 other students to develop a fully-fledged game using C++ and SDL2
- Implemented model-view-controller architecture and inheritance for clean and organized code
- Used Git collaboratively and learned how to fix merge conflicts
- Was responsible for making the artwork and sprites, map rendering, and NPC interaction

**Penetration Testing Labs**

- Simulated penetration testing attacks on a dummy vulnerable server using SQL & command injection, cross-site scripting, cross-site request forgery, and backdoors via 3<sup>rd</sup> party vulnerabilities
- Learned the importance of input validation and encoding output, proper session management, and secure server configuration

**Web Programming Group Project: Virtual Conference Room using Robert's Rules of Order**

- Working in a group with 6 other students to build a virtual conference website that uses Robert's rules of order for more organized communication and collaboration
- Website is made with vanilla JavaScript + jQuery in frontend, NodeJS + ExpressJS and Azure SQL database for backend
- Am responsible for implementing the server and server-side operations such as user authentication, LRU caches and batch processing
- Also responsible for ensuring security of website by encrypting passwords with bcrypt and sanitizing input

**Deep Reinforcement Learning Hide-and-Seek with Unity ML-Agents**

- Trained two agents with deep reinforcement learning using Unity's ML-Agents Library
- Developed a game in which players could play against the trained agents