# Alexander William Kwandou

Cupertino, CA | Urbana, IL
williamkwandou@gmail.com | 510-899-9881
http://www.linkedin.com/in/alexander-kwandou | https://github.com/Wakwandou

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## EDUCATION

**University of Illinois at Urbana-Champaign**                                   **Dec 2023**
*Bachelor of Science in Computer Science*                                   GPA: 4.00/4.00

## WORK EXPERIENCE

**Software Design Lab (CS222)**                                   **Urbana, IL**
*Course Assistant*                                   August 2022-present
- Lead and mentor 3 teams consisting of 4 students each in the software development process, while teaching them best industry practices, including Git and Continuous Integration.
- Review all aspects of the project, including design, planning, execution, documentation, code quality, test coverage, and teamwork.

## RESEARCH EXPERIENCE

**Computer Networks and Security**                                   **Urbana, IL**
*Research Assistant*                                   May 2022-present
- Analyzed network partitioning methods for optimal placement of data aggregation points (DAPs) in smart grids and controllers in software-defined networks.
- Evaluated the efficacy of these various algorithms (K-Means, K-Medoids, adaptations of K-means, etc.) utilizing network parameters such as distance, latency, and cost.

## PROJECTS

**Rate my UIUC**                                   **Urbana, IL**
*CS 411 Project (Database Systems)*                                   July 2022-August 2022
- Developed a web application for UIUC students to post and search for reviews on courses and instructors.
- Designed the front-end application and user interface using HTML and CSS.
- Utilized Flask, SQL, and JavaScript as the backend architecture to interact with the MySQL database and display user-requested results in the front-end.

**Image Segmentation**                                   **Urbana, IL**
*CS225 Project (Data Structures)*                                   January 2022-May 2022
- Utilized openCV to allow the user to draw background and foreground seeds on an image.
- Implemented two network flow algorithms (Dinic's and Edmond-Karps) in C++ to perform image segmentation on small grayscale images from the CIFAR-10 dataset.

**Operation UNO**                                   **Urbana, IL**
*CS222 Project (Software Design Lab)*                                   January 2022-May 2022
- Created an UNO card game application using the Pygame library.
- Designed an easy-to-use menu, integrated custom graphics, and animations, managed user accounts and implemented an AI opponent with multiple difficulty settings.

**Handwriting Recognition Program**                                   **Urbana, IL**
*CS128 Project (Intro to Computer Science II)*                                   August 2021-December 2021
- Developed a Python handwriting recognition application with openCV by generating bounding boxes around individual characters in a word image.
- Implemented a convolutional neural network with NumPy to analyze individual character images.
- Generated test cases to the MNIST dataset to augment the training of the machine learning algorithm and produce better predictions.

## SKILLS

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| *Languages* | Java, C++, Python, C, JavaScript |
| *Applications* | GitHub, Docker, Photoshop, After Effects, Illustrator |
| *Web development* | HTML, CSS, Flask, Bootstrap |
| *Database management* | MySQL, NoSQL, MongoDB, Neo4j |
| *Tools* | Git, LaTeX, Unix, MATLAB, Autodesk Inventor |