# Arman Atwal

+1-916-919-9410 | aatwal1820@sdsu.edu | linkedin.com/ArmanAtwal | github.com/ArmanAtwal | armanatwal.com

## Education

**San Diego State University** — San Diego, CA
*Bachelor of Science in Computer Science, 4.0 GPA* — *Aug. 2022 – December 2025*

## Experience

**Software Systems Research Assistant** — August 2023 – Present
*San Diego State University* — *La Mesa, CA*

- Investigating methods to optimize real-time object detection algorithms for moving vehicles by strategically pruning binary trees, striking a balance between speed and accuracy.
- Exploring the intersection of software systems and design to create efficient solutions that ensure timely detection of objects around a vehicle, with a focus on practical implementation.
- Contributing to the advancement of intelligent transportation systems, with the potential to enhance road safety through faster and more accurate object detection in dynamic environments.

**eLEET Coders Club Leadership Board** — April 2023 – Present
*San Diego State University* — *La Mesa, CA*

- Initiated partnerships with guest speakers from the tech industry, organizing informative sessions that exposed members to diverse career paths and industry insights.
- Collaborated with fellow board members to discover a comprehensive curriculum for bi-weekly club meetings, focusing on LeetCode problem-solving, fostering technical proficiency among members.

## Projects

**Chess Engine** | *Java, IntelliJ, Guava*

* Developed a simple AI using the minimax algorithm. The AI evaluated moves by recursively analyzing the game tree, considering different outcomes and selecting the move that maximizes its chances of winning.
* Programmed the logic for each chess piece's movements. This included determining the valid moves for pieces considering factors such as piece blocking, capturing opponent's pieces, castling, en passant, and promoting pawns.
* Implemented robust mechanisms to prevent illegal moves and maintai n the integrity of the game. This involved systematically checking the current game board state, making sure that no moves violated the rules of chess.

**Recipe Saving App** | *Swift, SwiftUI, Xcode*

* Developed a feature-rich recipe saver app using Swift and Xcode, optimizing performance with advanced coding techniques like tab bar navigation, data modeling, and grid layout.
* Implemented a comprehensive recipe management system with Swift, allowing easy categorization and access to detailed information. Enhanced user experience with seamless image loading using AsyncImage.
* Created an intuitive interface for adding new recipes, streamlining input and storage with Swift. Designed visually appealing UI in Xcode for a smooth user experience.

**Wordle Clone** | *Python, PyCharm, PyGame*

* Developed a Wordle game using the Pygame library, implementing various game mechanics and graphical elements. The game provides an interactive interface where players can guess a five-letter word within six attempts.
* Designed and implemented a responsive user interface with intuitive letter selection and deletion functionalities. Users can input their guesses by selecting letters from an on-screen keyboard and deleting them if needed.
* Implemented an efficient word-checking algorithm that provides visual feedback to the player by highlighting correct letters in green, partially correct letters in yellow, and incorrect letters in grey.

## Technical Skills

**Proficient Languages**: Java, C, C++, HTML/CSS, Assembly, JavaScript, Swift, Python
**Developer Tools**: Git, VS Code, Visual Studio, IntelliJ, Eclipse, Xcode, Mars, PyCharm, CLion, RubyMine, WebStorm
**Experience With**: Data Structures, Algorithms, Circuit Engineering and Design, Testing, and Operating Systems