

# Manuel Paul

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## EDUCATION

- Rutgers University - Honors College** New Brunswick, NJ  
• Bachelor's of Science - Computer Science & Data Science; GPA: 3.83; Dean's List Expected May 2027
  - Relevant Coursework:** Computer Architecture, Discrete Structures, Data Structures, Data 101, Linear Algebra

## TECHNICAL SKILLS

**Languages:** Python, Java, Kotlin, Swift, R, C++, C, Javascript, HTML  
**Frameworks & Libraries:** React, SwiftUI, UIKit, TensorFlow, PyTorch, OpenCV, NumPy, Pandas, Matplotlib, Scikit-learn, XGBoost, Plotly, Prophet  
**Developer Tools:** Git, Firebase, Xcode, Android Studio, Jupyter Notebook, AWS, JUnit, GDB  
**Soft Skills:** Leadership, Strong Communication, Problem-Solving, Adaptability, Teamwork, Critical Thinking

## EXPERIENCE

- Rowan University** | Web Developer June 2023 - August 2023
  - Designed a university web page with forms/registration using HTML, CSS, and PHP.
  - Collaborated with a team in web design and development in the Department of Computer Science to ensure UI layout and functionality on mobile devices as well as desktop computers.
- Sonny Werblin Recreation Center** | Recreation Assistant September 2025 - current
  - Greet and assist visitors, manage access, answer questions, and support operations by monitoring spaces, enforcing policies, and maintaining a safe, welcoming environment. Support events and tours, collaborating with staff to ensure smooth operations and positive experiences.

## PROJECTS

- Allergen Scanner App** | Kotlin, Swift, TensorFlow, OpenFoodFacts API May 2025 – August 2025
  - Developed cross-platform apps in **Kotlin** and **Swift** utilizing the **OpenFoodFacts API** and **TensorFlow** to detect food allergens in real-time via barcode scanning and image recognition.
  - Implemented **CodeScanner** for iOS camera integration and utilized coroutines, asynchronous patterns, and OOP principles to ensure high-performance data processing and a responsive user experience.
- Crypto Portfolio App** | <https://crypto-portfolio-app.expo.app/> | React Native, Python, Prophet July 2025 – August 2025
  - Developed a **React Native** mobile application providing real-time statistics for the **top 250 cryptocurrencies**, featuring **persistent storage** for portfolio tracking and **REST API** integration for live market data.
  - Built **interactive charts** for data visualization and integrated a **Python Prophet machine learning model** to perform **time-series forecasting** on 24-hour price movements.
- Fetchr** | Python, YOLOv8, Swift, ESP32, IoT October 2025
  - Engineered an integrated pet safety system using an **ESP32** microcontroller, GPS tracking, and IoT sensors to monitor real-time health data via a **SwiftUI** mobile application.
  - Developed a custom **YOLOv8** computer vision pipeline in **Python** to classify pet emotional states from imagery, automating owner alerts and care recommendations based on detected moods.
- NBA Twitter Bot** | Python, X API (Tweepy), CSV Data Handling August 2025
  - Engineered an automated bot using **Python** and the **X (Twitter) API** to broadcast a curated database of historical and active NBA players at 85-minute intervals.
  - Implemented a persistent data pipeline that utilizes **CSV parsing** and **array-based data structures** to track player entries, ensuring unique posts by dynamically updating the source file and managing API rate limits.
- Flappy Bird Remake** | <https://manuelp-12.github.io/flappy-demo/> | JavaScript, HTML5, Neataptic July 2025
  - Recreated the Flappy Bird game engine from scratch using **JavaScript** and **HTML5**, implementing custom physics, collision detection, and progressive difficulty scaling.
  - Integrated the **Neataptic** library to develop a neural network that utilized neuroevolution to learn optimal flight patterns, evolving through generations to eventually master and beat the game.
- Snake Remake** | <https://manuelp-12.github.io/Snake/> | JavaScript, HTML5, CSS3 June 2025
  - Reengineered the classic Snake game using **JavaScript** and **HTML5 Canvas**, implementing custom **collision detection algorithms** and **frame-based movement** logic for smooth gameplay.
  - Architected the codebase using **Object-Oriented Programming (OOP)** principles, utilizing classes for game entities to ensure **modular, maintainable code** and efficient state management.

## LEADERSHIP & CERTIFICATIONS

- Rutgers Org. of Cloud Computing (ROCC)** | Treasurer January 2026 – Present
  - Facilitating a professional network and learning forum focused on upskilling students in cloud architecture (AWS/Azure) through technical workshops and industry networking events.
  - Managing the organization's budget and financial allocations, overseeing expenditures for club meetings and social events to ensure sustainable operations and member engagement.
- Beginning C++ Programming** December 2025 - January 2026
  - Completed an introductory course on C++ programming, covering core concepts including syntax, control structures, functions, pointers, memory management, and the standard template library. Built a strong foundation in C++ for systems-level and performance-critical development.
- Mastering Kotlin for Android Development** January 2026 - Present
  - Completed a comprehensive course on Kotlin for Android development, focusing on object-oriented design, coroutines, and modern Android app architecture. Gained hands-on experience building responsive, user-friendly mobile applications using industry best practices.