Jonathan Gil

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Education

Georgia Institute of Technology – Atlanta, GA May 2027

- *Bachelor of Science in Computer Science: Info/Internetwork-Intelligence (GPA: 3.36)*
- Coursework: Data Structures and Algorithms, Design and Analysis of Algorithms, Machine Learning, Systems and Networks, Introduction to Database Systems, Objects and Design, Linear Algebra

Skills

Programming Languages: C/C++, Python, Java, C#, SQL, Dart, JavaScript, HTML/CSS, XML, PHP, ROS2

Frameworks and Technologies: Agile, Flutter, .NET 6, IntelliJ, VS Code, Git/GitHub, Firebase, Android Studio, CoLab, Docker, Postman, Eclipse

Experience

Undergraduate Researcher - GT Automated Algorithm Design Jan 2025 – Present

- Minimized error by 20% and optimized model complexity by implementing genetic programming and multi-objective optimization, including symbolic regression and Pareto front analysis, by utilizing the DEAP Python library.
- Achieved greater accuracy than traditional ML models by leveraging NSGA-II selection and optimizing 92 generations, enabled by automating the machine learning algorithm design on the Titanic dataset.
- Facilitated 5 Monte Carlo trials to evaluate and score algorithm performance by enabling a local computer to function as a worker process within an evolutionary framework via a server connection through SQL.

Software Engineer - GT RoboJackets RoboCup Aug 2024 – May 2025

- Integrated multi-agent adversarial strategies and enhanced motion planning algorithms for six autonomous soccer robots using C++ and ROS2 in an Agile team.
- Improved decision-making efficiency in the stack by optimizing robotic strategy through dynamically adjusting behavior in simulation using rqt.

Projects

DermaScan | *Python, TensorFlow, Streamlit* Feb 2025

- Launched an interactive web application in a five-person team that analyzes skin images and provides diagnostic insights, integrating a Streamlit-based interface for live predictions and enhanced accessibility.
- Accomplished 80% accuracy in classifying skin lesions by training a Convolutional Neural Network (CNN) on 10,000 images from the HAM10000 dataset.

WanderSync Navigation App | *Java, Firebase, MVVM* Aug 2024 - Nov 2024

- Built an Android navigation app in an Agile team that provides seamless real-time location tracking, leveraging MVVM and Firebase for scalable, real-time user collaboration.
- Enabled dynamic user invitations for shared access by engineering a secure user authentication system and enabled real-time collaboration.

Fractal Tree Visualizer | *Java, Swing* Mar 2024

- Developed an interactive fractal tree visualizer in Java using Swing, incorporating buttons and sliders for dynamic adjustments.
- Designed as an educational tool to demonstrate recursive stack behavior through graphical depictions, and engineered a linked list stack to dynamically modify branch thickness, layers, and angles.

Geography Web Game | *HTML, CSS, Javascript* Feb 2024 – Mar 2024

- Created a web app in a two-person team that quizzes users on country flags, tracks score, and improves geographic knowledge.
- Implemented the RestCountries API to fetch images and names, enabling gameplay with both official and common country names through a dynamic JavaScript array.