

Songyuan Liu

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• ecoist-ste.github.io/personal-website

EDUCATION

GEORGIA INSTITUTE OF TECHNOLOGY *Atlanta, GA*

B.S. in Computer Science (3.77/4.0)

May 2025

- Computer Organization & Programming, Design & Analysis of Algorithms, CREATE-X Entrepreneurship Program, Objects & Design, Data Structures & Algorithms, Linear Algebra, Multivariable Calculus

PROJECTS

COMPUTER ORGANIZATION & PROGRAM COURSE PROJECTS *CS2110, GIT*

Jan 2023 - May 2023

- Implemented in C the backend of malloc(), calloc(), realloc(), free(), Singly linked list
- Worked in Game Boy Advance Mode 3 and coded in C to create an interactive 2D game
- Learned bitwise operation, digital logic, microprocessor, assembly, I/O, interrupts & TRAPs, C, etc.

2D DUNGEON CRAWLER GAME *Written in Android Studio (Java)*

Aug 2023 - Dec 2023

- Superintended the team's progress on system diagrams and implementations
- Complied with Agile and MVVM framework (5 sprints in total)
- Wrote unit tests in JUnit4 for business logics including propagation of instance variables throughout the program

OPTIMIZATION FOR INVESTMENT IN FLORIDA WILD PLANTS RECOVERY PROGRAMS *Written in MATLAB*

Nov 2022 - Dec 2022

- Dug in quantitative factors & formed objective functions subject to constraints
- Fledged a genetic algorithm-based model to solve the functions by permuting funding plans via simulating natural selection
- Cleansed and fetched the data in the financial report of 48 investment projects to feed the algorithm
- Wrote a technical report to the Board about the economic costs and returns of the model
- Our model allows the plan to raise \$2,107,285 funds every year and see profits growing by 600% starting the 5th year
- Technical report at: https://ecoist-ste.github.io/personal-website/pdf/himcm_paper.pdf

SELF-ADJUSTED WASTE PICKUP ROUTING SYSTEM *Written in Python*

June 2021 - Jan 2022

- Led a field study in the distribution of Chongqing neighborhoods' trash cans and in garbage trucks' daily routes
- Designed a route-optimization model in Python
- Reduced CO2 emission by 425 kg per truck per year
- Project presentation website at: <https://ecoist-ste.github.io/promotion-website/>

EXPERIENCE

GEORGIA TECH iOS CLUB *Atlanta, GA*

Senior Developer and Officer

Jan 2023 - present

- Built a thought-exchange app called ThoughtBank through SwiftUI and Xcode
- Built a movie-tiering-centered social app
- Hosted SwiftUI-tutorial seminars for new members
- Used Firestore cloud database for hosting app-relevant data
- Split team into different testing units for debugging and improving the app's functionalities
- Met weekly with team members for tasks assignment

SKILLS

Java, Git, Swift, iOS, C, Python, NumPy, Pandas, SQL, HTML, CSS, MATLAB