TING-EN LIAO 廖廷恩

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EDUCATION

National Yang Ming Chiao Tung University *September 2018 - Present*
4th Year, BS Degree Major GPA: 4.19/4.3
Department of Computer Science Overall GPA: 3.82/4.3

PROJECTS

SAT Solver (GitHub)

- This SAT Solver takes boolean expression in CNF as input and tries to solve it
- Implement algorithms such as DLL, CDCL, VSIDS, 2-literal watching, BCP and so on...
- Preprocessing(NiVER) and Parallelizing mode is provided to boost the process
- Implement the priority queue with optimized heap to speed up the operations
- It usually be able to solve boolean expression with less than 100 variables and 300 clauses
- The application of SAT Solver, finding Graeco-Latin square is also provided.

FruitHub (GitHub)

- A website provides customised fruit searching and recommends fruit of the day for users
- This project is a collaboration with three of my fellow classmates
- Front-End and Back-End are separated while developing, and they communicate through RESTful API
- Front-End develop with React while Back-End use FastAPI framework
- Data is fetched by Python programs which using Python package "Requests" and daily updated by crontab and shell script

P language compiler

- A compiler for a self defined language **P**
- All fundamental stages except code optimization of compiler are implemented from scratch
- Implement scanner using **lex** and parser using **yacc**
- Data structures such as **AST** and **symbol table** are implement in C++
- RISC-V instruction is the output of this compiler

RESEARCH

Modelling COVID-19 transmission and vaccination strategies in Taiwan *June 2021 - Present*
Advisor: Dr. Shi-Chun Tsai (NYCU, Taiwan), Dr. Tyng-Ruey Chuang (Academia Sinica, Taiwan)

- Modelling the transmission of COVID-19 based on contact matrix and geographical features of Taiwan
- Aim to find the best vaccine strategy that reduce the incident of infectious, death or Year of Lost
- The method of finding best vaccine strategy is related to Markov chain and Graph theory
- This research project is a collaboration with Academia Sinica and currently still in progress

AWARD

NYCU Academic Achievement Award *Fall 2020*
NYCU CS Departmental Research project competition: honorable mention *Fall 2021*

SELECTED COURSEWORK

- Data Structures(A+)
- Computer Organization(A+)
- Linear Algebra(B+)
- Competitive Programming(A+)
- Introduction to Algorithms(A+)
- Introduction to Operating Systems(A+)
- Discrete Mathematics(A)
- Basic Programming(A+) GPE: 600/600
- Parallel Programming(A+)
- Introduction to Compiler Design(A+)

SKILLS

Programming Languages:
C, C++, Python, RISC-V, SQL(basic), Markdown, LaTex

Others:
Linux, FreeBSD, Git, Makefile, GDB, Docker, GNU toolchain

LANGUAGE SKILLS

English - Fluent (TOEFL ITP 590)

Chinese - Native