Raymond Hong

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EDUCATION

UNIVERSITY OF TEXAS
BS in Computer Science Honors
Turing Scholars Program
BS in Mathematics
Minor in Core Texts and Ideas (Historical Texts)
Cum. GPA: 4.0 / 4.0
Major GPA: 4.0 / 4.0
Expected May 2023

COURSEWORK

CURRENT
Operating Systems Honors
Computational Biology Algorithms
Data Mining
Mathematical Statistics
Computational Biology Research

PREVIOUS
Computer Architecture Honors
Data Structures Honors
Compilers
Intro to CS Research Honors
Computational Biology
Discrete Mathematics Honors
Real Analysis
Vector Calculus Honors
Linear Algebra Honors
Differential Equations Honors
Number Theory
Probability

LANGUAGES

Proficient
Java • Python
Experience With
C • MATLAB • R • Verilog • HTML • Javascript • Coq

OTHER PROJECTS

- Pascal Compiler
- Party Game Android App (for HackTX 2019)
- Verilog Multicore Processor
- Risk Board Game
- Food Finder (Restaurant Suggestor)

PROJECTS

WEB CRAWLER
Language: Java

- Built a web crawler to parse text content from a given .html file and all .html files connected to it.
- Supports queries that allow the user to find which pages contain certain words/phrases.
- Created query parser to support advanced searches with boolean operators (e.g. pages that contain "Hot" and "Cold" but not "Warm")
- Incorporated word frequency metrics to suggest pages with similar content to the user and rank how relevant each search result was to the query.
- Implemented supporting data structures, such as Trie for query lookup (modified to support phrases and sentences), along with serialization for those structures

TEXTURE SYNTHESIS
Language: Python

- Implemented a texture synthesizer, which when given a source image that contains random or chaotically arranged elements, can produce a larger image that emulates the source image's pattern
- Allows small images (e.g. 200 x 200) to be used to create visually appealing images that require a much higher resolution (e.g. a desktop or phone background)
- For a more visual explanation of this project, see here: https://github.com/Derayvative/Texture-Synthesis

TETRIS
Language: Java

- Created a single-player version of the classic puzzle game Tetris
- Also created a computer-controlled player for Tetris using a genetic algorithm (a natural selection-based heuristic) by first randomly generating a pool of computer-controlled players and "breeding" the players that scored high more frequently than low scorers.

EXPERIENCE

Teaching Assistant for CS302 (Computer Fluency [Python/Sum 2020]) and CS 314H (Data Structures Honors [Java/Fall 2020])

ACTIVITIES

Type Theory and Formal Verification Reading Group • Turing Scholars Student Association • Association for Computing Machinery • Society of Asian Scientists and Engineers • UT Math Club • Jefferson Scholars Program

RESEARCH

UT Big Data in Biology Research Stream

- Currently doing research on the detection of structural variations in the DNA of multiple myeloma patients