Iain Tierney

Personal Website | Github

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EDUCATION

UNIVERSITY AT BUFFALO

May 2022 | Buffalo, NY
Major: Computer Science B.S.
Cum. GPA: 3.88 / 4.0
Honors: Deans List

EXPERIENCE

RESEARCH, SPACE NET SIMULATION

University at Buffalo
Jan 2021 - Present | Buffalo, NY

- Only undergraduate cs student selected to work on this research.
- Real-time 3D simulation of tether-nets to capture and remove space debris from orbit.
- Improved simulation speed by implementing parallelization in C++ for faster processing.
- Developing an algorithm to improve the efficiency of adding forces to tether-net nodes by as much as 50 percent.

SOFTWARE ENGINEERING TEAM

University at Buffalo
Aug 2020 - Dec 2020 | Buffalo, NY

- A technical project manager, team of four, and I utilized Git and the Agile(Scrum) software life-cycle model for systematic software testing and development.
- Leveraged knowledge with full stack web development to integrate a user nutrition tracking system with real-time persistent storage and deletions.
- Integrated interactive health calculators with Vue and JavaScript.

DATA COORDINATOR INTERN

Town of Somers
May 2019 – Aug 2019 | Somers, NY

- Improved data storage by implementing a sorting algorithm to find site users based upon various data points.
- Implemented various user flags to store user info in appropriate CSV files with Python.

SKILLS

Proficient with:
C++ • Python • Flask • Scala • Git
JavaScript • HTML5 • CSS3 • Bootstrap
Agile(Scrum) • jQuery • JSON
Familiar with:
MySQL • Vue • C • Assembly (MIPS)

PROJECTS

View More Projects

GOOGLE QUICKDRAW - OBJECT DETECTION

Jan 2021 - Present (In Progress)

- Built with Python, TensorFlow 2 Object Detection API, Google QuickDraw API, Javascript, HTML5/CSS3 and AJAX.
- Using pre-trained models (COCO), this app will convert a real-life picture into a cartoon picture containing the main objects found in the real-life picture.
- Incorporated TensorFlow 2 Neural Networks to develop an algorithm that detects common objects, matches them to their cartoon counterpart, and provides an animated cartoon drawing.

HEALTH FITNESS APP | View Project

Sept 2020 - Jan 2021

- Built with Python, Flask, Vue, JavaScript, HTML5/CSS3, Heroku, AJAX, SQLite, Nix and Git with an agile(scrum) team.
- Incorporated persistent data storage and user accounts to keep track of users nutrition and health, allow users to share fitness tips and feats, calculate various body-health measurements, and more.
- Integrated SQLAlchemy to convert the database schema into python classes to be used as database tables.

SORTING VISUALIZER | View Project

Sept 2020

- Built with jQuery, Bootstrap and HTML5/CSS3 to visualize, pause, and control the speed of various sorting algorithms.
- Implemented Quick sort, Bubble sort, Selection sort and Insertion sort.
- Developed a smoothing algorithm to control the speed of the visualization with your mouse.

AUDIO VISUALIZER | View Project

Aug 2020

- Built with AJAX, SoundCloud API, Web Audio API, jQuery, Bootstrap and HTML5/CSS3.
- Developed an algorithm to create a 2D visualizer that manipulates shape radius, depth, and location by implementing a Fourier transform on SoundCloud audio slices.
- Implemented a URL and/or keyword search by sending GET requests and queries to the SoundCloud API.

DYNAMIC MEMORY ALLOCATOR | View On Github

April 2020

- An implementation of malloc(), calloc(), realloc(), and free(); built with C and tested with Makefile.
- Capable of running many single-threaded Linux applications.
- Utilizes Multi-pool allocation to efficiently use the system call for requesting memory blocks from the operating system.