Valeriy Soltan

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Education

B.S in Computer Science and Statistics *Amherst, MA*
UNIVERSITY OF MASSACHUSETTS AMHERST, GPA: 3.96/4.0 *Expected: May 2022*

- **Awards:** Member of Commonwealth Honors College, Dean's List.
- **Relevant Coursework:** Algorithms, Data Structures, Operating Systems, Systems Programming, Physical Computing.

Experience

Ultimate Software Co-op *Lowell, MA*
BACKEND DEVELOPER *Aug 2020 - Dec 2020*

- Used Node.js and Express.js to design and implement a REST API as part of a company structure microservice, allowing employees to view and modify company information stored in a MongoDB database.
- Implemented payload validation, JSON Web Token authentication, and custom authorization middleware to allow different levels of access for managers and executives.
- Created unit and integration tests for the backend application sequence using Chai and Mocha frameworks.

OpenThings *Amherst, MA*
FIRMWARE INTERN *May 2020 - Aug 2020*

- Integrated highly requested features into the OpenSprinkler product firmware, enabling users to pause programs and configure task execution order.
- Migrated notifications framework from HTTP to MQTT, reducing network overhead and providing support for communication between the sprinkler controller and off-the-shelf home automation hubs.
- Implemented front-end user interface for new firmware features using jQuery and CSS.

Projects

mbed-Pong
C, C++, TYPESCRIPT *Oct 2020 - Dec 2020*

- Developed firmware for a multiplayer port of the classic game on the mbed LPC1768 microcontroller, implementing graphical assets, socket networking elements, and data processing pipelines.
- Built a UDP Node.js server to handle game and matchmaking logic as well as game-state updates, synchronization, and redistribution to clients connected via Ethernet. Hosted the server on an AWS EC2 instance.

Raytracing Accelerator
JAVASCRIPT *Mar 2020 - Apr 2020*

- Used THREE.js to implement a ray tracer capable of rendering complex, super-sampled scenes with realistic lighting effects.
- Integrated a bounding volume hierarchy (BVH) acceleration structure, reducing the number of intersection computations and making render times ~40x faster.

Simple Watch
C, C++, JAVA *Oct 2019 - Feb 2020*

- Designed and engineered a smart watch, including the PCB and firmware, that is capable of connecting to mobile devices via Bluetooth and a mobile companion app.
- Created a suite of applications to run on the watch, including a timer, music player, and dynamic weather widget powered by OpenWeatherMap API.
- Implemented operating system elements like application save states, accurate time-keeping, and a scrolling navigation system.

Real World Design Challenge
"MOST CREATIVE DESIGN" NATIONAL MERIT AWARD *Sep 2017 - May 2018*

- Designed a path-finding algorithm for an unmanned aircraft system to survey and eliminate crop infestation.

Skills

Languages	Java, C, C++, JavaScript, Python, CSS, HTML, Go (golang).
Tools	Git, React, jQuery Mobile, Node.js, MongoDB.
Platforms	ESP8266, ESP32, LPC1768, Arduino, ARM mbed.