Zachary Espiritu

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Education

Brown University
Sc.B. Computer Science
GPA: 4.0 · Graduating May 2021

Regis High School · June 2017

Skills

Languages

Ruby · C++ · C · JavaScript ·
HTML / CSS · Pyret · Racket ·
Python · SQL · Swift · Go · GLSL ·
MATLAB · Bash · Assembly

Technologies

Rails · React · Sass · jQuery ·
Heroku · Firebase · PostgreSQL ·
OpenGL · LaTeX

Formal Methods

Alloy Analyzer · TLA+ · Z3

Prototyping and Design

Sketch · Figma · InDesign ·
Photoshop · Adobe XD

Coursework

Computer Systems Security
Design and Analysis of Algorithms
Discrete Structures and Probability
Introduction to Computer Systems
Introduction to Computer Graphics
Logic for Systems (Formal Methods)
Operating Systems*
Programming Languages
User Interfaces and User Experience
in progress

Interests

Theatrical Lighting Design
Plays and Musicals
Print Layout Design
Rhythm Games

Experience

Brown PLT (Programming Languages Team) — Summer 2018
Undergraduate Researcher

- Ported TensorFlow.js to Pyret to allow for Pyret programs with machine learning.
- Implemented a Pyret kernel for the Jupyter messaging protocol in JavaScript, allowing for the creation of Pyret "notebooks" and a command-line Pyret REPL.

Negotiatus — Summer 2017
Software Engineering Intern

- Built several tools and interfaces in Ruby on Rails designed to automate and streamline Operations team workflows and improve overall company efficiency.
- Worked directly with third-party vendors to create automated price comparison and order management systems directly integrated with each vendor system.

Negotiatus — Summer 2016
Software Engineering Intern

- Designed, developed, and launched several client-facing features using Ruby on Rails, including the *Scheduled Orders* system and *Notifications Center* panel.
- Co-wrote test suite from scratch for +10k lines of code with over 70% coverage.

Teaching · *(* denotes Head Teaching Assistant)*

CSCI 1660: Computer Systems Security (*) — Spring 2019
Introduction to security from both theoretical and applied viewpoints. Projects in Python, Bash, Go, PHP, and SQL. Hired, trained, and coordinated staff of 8 TAs.

CSCI 0190: Accelerated Intro to Computer Science (*) — Fall 2018
Functional programming, data structures, and algorithms in Racket and Pyret. Hired, trained, and coordinated staff of 9 undergraduate TAs. Developed new assignments and labs. Remotely organized summer placement exam and grading for 174 students.

Additional Courses

CSCI 0040: Intro to Scientific Computing (Python and MATLAB) — Spring 2018
CSCI 0050: A Data-Centric Introduction to Programming (Pyret) — Fall 2017

Projects · *(more at zacharyespiritu.com)*

Math Battle!
Real-time, multiplayer, educational math experience on iOS with 4000+ downloads. Named on "10Under20: Young Innovators to Watch" at CEWeek 2016 for this work.

collab/space, *Hack@Brown 2018*
Online IDE built in Meteor and React for real-time collaboration via a live-updating, synchronized editor, in-browser code compilation, and video chat.

Graph Algorithm Modeling and Verification, *"Logic for Systems" Final Project*
Modeling and formal verification of 3 MST and 2 shortest-path algorithms in Alloy.