Ryan Ellis

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Education

University of Maryland, College Park — College Park, MD
B.S. Computer Science — May 2020
Minor in Mathematics

Projects

Snap to Run *Java, Python* — devpost.com/software/snap-to-run
Winner of the Best Use of AWS Prize Dragonhacks 2018

- Android application that enables someone to take a picture of hand written Python code and be sent a text message of the compiled result.
- The front end of the application was created in Android Studio using the Android SDK and implements the Google Vision API to perform optical character recognition (OCR) on the image.
- The backend server is written in Python and hosted on AWS where it listens for HTTP requests from the android app using a RESTful API. The server also implements the Twilio API to text the results of the Python code back to the user after it has been converted from plain text.

Reddit Chess Bot *Python, MySQL* — github.com/ryan-ellis/Reddit-Chess-Bot

- Reddit bot that can be summoned with a text command in any comment thread, takes a specific chess position as an input and attempts to return a professional chess game that features the same position.
- Implemented using the Python Reddit API Wrapper to view and respond to comments and the Beautiful Soup 4 package to perform web scraping on a chess database when searching for positions.
- The bot is hosted on AWS and uses a MySQL database to store information regarding the users it interacts with.

Percolation Simulator *Java* — github.com/ryan-ellis/Percolation-Simulator

- Java program used to estimate the value of the percolation threshold via Monte Carlo simulation.
- Percolation is modeled by using a boolean array of n-by-n sites with each value set to true or false representing the state of each site being either open or blocked. A system percolates if there is an open site that connects the top row to another open site on the bottom row.
- Implemented using Object Oriented design which enables thousands of trials to be run in order to generate statistics describing the relationship between percolation rate and the and size/density of the grid.

Experience

Learn to Code — Douglas, MA
Founder/Director — Oct. 2015 - May 2016

- Created a 10-week after school program that used the Scratch programming language to provide middle school students with an introduction to computer science.
- Modified lesson plans from Harvard's CS50 course to develop a class structure that was more suitable for a middle school audience and created programming projects to reinforce subjects taught in class.
- Lectured to a class of 10 students about the history of computing, introduced students to new technologies such as virtual reality via Google Cardboard, and taught students basic programming concepts such as loops and conditional statements.

Skills

Programming Languages	Java, Python, HTML, CSS, Javascript
Frameworks	Bootstrap, Animate.css, Materialize
Tools/Databases	Git, AWS, MySQL