Jackie Yuan Jun Xu

2A Computer Science / Undergraduate Research Assistant

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Programming

Python	SQL
Java	Markdown
C, C++	Racket
HTML	Bash Shell
CSS	Visual Basic
JavaScript	

Tools

Git	Pygame
MySQL	Visual Studio
Node.js	Android
Bootstrap	Studio
AngularJS	After Effects
Numpy	Photoshop
Matplotlib	Unity
Sklearn	

Achievements

NSERC — USRA
(2017)

Dean's Honours List
(2017, 2016)

President's Scholarship of
Distinction
(2016)

Governor General Medal
(2016)

Interests

Game Dev	Music
Data Science	Virtual Reality
Video Pro-	
duction	

Education

University of Waterloo

Candidate for Bachelors of
Computer Science
2016 — Present

Experience

Undergraduate Research Assistant (Sept 2017 — Present)

University of Waterloo — Faculty of Engineering (Waterloo, ON)

- Developed Python scripts to analyze data trends found in server logs from SQL databases, which generates detailed graphs with regression models using Numpy and Matplotlib
- Currently compiling a report on the specifications of the tool that analyzes the data trends

Full Stack Developer / Self-adaptive algorithms researcher (May 2017— August 2017)

MyEffect Inc. / University of Waterloo — Faculty of Engineering (Kitchener, ON)

- Designed, implemented and tested new front-end and back-end features for the company's web platform using HTML, CSS, AngularJS, SequelizeJS and SQL
- Explored self-adaptive, machine learning algorithms for the Self Adaptive Platform for Social Impact (SAP-SI) project, with the purpose of optimizing the efficiency of database queries for the MyEffect Inc. web platform
- Tested the current security infrastructure against malicious API requests. Discovered and patched a critical security authorization bug as a result
- Responsible for creating a detailed, step-by-step developer guide for the company platform using Markdown. Includes explanations of essential frameworks, navigation, and API usage
- Enhanced a Python parsing script that parses SQL server log files into formatted, CSV files
- Wrote detailed, formal reports on the SAP-SI project, including documentation on the parsing tool and potential methods of database optimization

Projects & Activities

Game Development (2016 — Present)

- Re-created modernized versions of **Snake, Space Invaders, Pong, Helicopter, Platformer and Tower Defense** with new additions using Pygame
- **Tower Defense (May 2017—Present):**
  - Integrated a realistic enemy tracking system using kinematics
  - Programmed AOE (area of effect) mechanics using physics from explosions seen in the real world
  - Designed a compact data structure for customizable map generation and enemy path-finding logic
- **Galactic Defender (Formerly Space Invaders) (Jan 2017)**
  - Introduced new additions such as power-ups, bosses, custom sprites and an infinite scrolling background
  - Incorporated different types of enemies with special abilities, such as tracking the player
- **Platformer (Formerly Dragon Run) (Aug 2017 — Present):**
  - Created a platformer template module that is fully customizable with OO programming
  - Provides versatile and adjustable module components such as collisions, gravity and world size
- **WatRGoose (Dec 2016):**
  - Explored and developed a fully functional, logic based Android mini-game in 12 hours using Android Studio at MLH Local Hack Day 2016 with a team of three

Bash101 (Sept 2017 — Present)

- An open-source repository that provides a comprehensive guide to the Bash shell using Markdown
- Includes various topics organized in multiple sections with easy-to-follow pictures and example code

UofT Hacks IV — PicFive (Jan 2017)

Hackathon — Toronto, ON

- Developed the web GUI from scratch using HTML, CSS and JavaScript with Handlebars and Bootstrap
- Developed an image-word associated web game as a team using the Clarifai API, which provides image and natural language processing abilities to be able to recognize contents in photos