

# Felix Guo

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🏠 [felixguo.me](http://felixguo.me) < [github.com/fg123](https://github.com/fg123)

## SKILLS >

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**Programming** C, C++, Python  
**Game Design** Unity, SFML, UE4

**Web** HTML5, CSS, Javascript, PHP, MySQL  
**Android** Java, Kotlin

## EXPERIENCE >

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### Riot Games Inc.

(Remote) Los Angeles, CA

Software Engineering Intern

Jun. 2020 - Aug. 2020

- Worked on the League of Legends Champions Engineering team, focused on game engine code in C++
- Fixed various player-impacting champion bugs and scripted abilities on upcoming champions
- Implemented features and improvements to champion scripting tool used by designers
- Refactored game engine network registration code to optimize for game object creation

### Citadel Securities LLC.

Chicago, IL

Software Engineering Intern

Sept. 2019 - Dec. 2019

- (NDA) Developed tools, infrastructure, and testing systems in equity and options market making in C++, Python and Bash

### Google LLC.

Sunnyvale, CA

Software Engineering Intern

May. 2018 - Aug. 2018

- Helped develop and launch KUnit, a unit-testing framework for the Linux Kernel
- Built user-facing scripts in Python to interact with the KUnit to run and manage unit tests
- Implemented mock types, in-sequence expectation matching and other unit testing features in C

### Yahoo! Inc.

Sunnyvale, CA

Software Engineering Intern

Jan. 2018 - Apr. 2018 | May. 2017 - Aug. 2017

- Created new Android "Accordion" ad layout for Growth and Monetization team with a custom view folding effect developed with Java to industry standards, raising click-through rates from 0.13% to 0.23%
- Developed Draft Chat and Draft Order pages up to spec, as part of Yahoo Fantasy Sports's live draft system
- Developed multiple features in Kotlin for Fantasy Sports Android such as Start Active Players for the week
- Planned and implemented complex UI flows on Android such as the native ability to Create a Daily Contest

### Inkpad Studios (Mobile Gaming Startup)

Vancouver, BC

Game Developer

Nov. 2014 - Jun. 2016

- Sole developer of Pedal Panic, a top-down tilt-controlled cycling game, working with Unity, Java and C#
- Implemented all parts of the game structure, including an audio manager for Unity, a randomized terrain generator, parallax scrolling for the background, and 3 different ad mediators for both interstitial and rewarded ads on Android
- Coordinated weekly meetings with game design, graphic artist, and sound artist teams to ensure task deadlines were met based on the Agile methodology

## PROJECTS >

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### WendyScript

Programming Language – [wendy.felixguo.me](http://wendy.felixguo.me)

Nov. 2016 - Present

- Compiler written fully in C, supports dynamic typing, first class functions with closures and meta-objects, including a lexer/parser, code-generator, and a bytecode VM
- Developed recursive descent parser to parse custom grammar into an abstract syntax tree as well as a VM to run custom compiled binaries

### Yate

ncurses Based Text-Editor – [github.com/fg123/yate](https://github.com/fg123/yate)

June 2018 - Present

- Yate is a fully featured Terminal text editor built with ncurses and C++
- Built tree-based layout system that supports arbitrary nesting of tabs and panels
- Designed prompt stack system to support central command processing for custom editing commands
- Developed a tree-based undo / redo buffer system allowing for multiple undo paths
- Supports custom syntax highlighting for different languages

### Stock Analysis Framework

Algorithmic Trading System

Dec. 2018 - Present

- Built a data processing pipeline for stock analysis encapsulated in a NodeJS application for easy deployment
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Supports managing multiple concurrent processes (JS/Python/C++/etc) and facilitating communication with named busses through standard in / out

- Each process runs individual components, such as market data scraping, aggregation, technical indicator processing, buy/sell signal generation
- Processes run based on real-time input streams of information (market data / external data / technical indicators)
- Backtesting framework based on replaying market data through trading algorithm processes
- Developed front-end visualization and process management running through the web

### **MercuryWM**

*Tiling, Multi-windowed JS Desktop Environment – [felixguo.me/mercury](https://felixguo.me/mercury)*

Jul. 2017 - Present

- Developed a new-tab page replacement that is based on a tiling window manager using React and Redux
- Created a JSON object based virtual filesystem with corresponding bash commands to navigate
- Developed Javascript API to allow user created scripts to interact with main window through iFrames to allow diverse, interactable, user-created extensions such as displaying a clock, weather, or to-do list widget

### **Nick PDF**

*Generate PDFs from XML Markup – [github.com/fg123/nick](https://github.com/fg123/nick)*

May. 2017 - Present

- Employs similar layout processes as Android's layout system, with custom written measure, layout and draw passes
- Supports generic UI templating system that allows reusing of elements to build complex, reusable layouts
- This PDF was generated with Nick; the XML source can be found at [github.com/fg123/portfolioWebsite](https://github.com/fg123/portfolioWebsite)

### **Urban Terror**

*Game Developer – [urbanterror.info](https://urbanterror.info)*

Jan. 2019 - Present

- Urban Terror is a free to play, multiplayer shooting game developed by Frozen Sand, originally released in 1998
- Currently working on the development team to build the new version, Resurgence, in Unreal Engine (C++, Blueprints)
- Developed various UI components, and some player movement code

### **Lumen Astrum**

*Turn-based Top-down RTS Game – [github.com/fg123/lumen-astrum-js](https://github.com/fg123/lumen-astrum-js)*

June 2013 - Present

- Lumen Astrum is a 1v1 game where players build structures and units to eventually destroy the enemy's command base, with tiered units requiring different support structures, a robust resource system, and a component of vision control
- Built event based, deterministic game model based on state change events in Javascript to ensure syncing and verification between server and clients
- Created UI and frontend engine for the game running on vanilla HTML5 canvas, including animation handling
- Developed core features like game state management, and hexagon tile pathfinding algorithms from scratch

### **Tetris with Friends**

*Online Multiplayer Tetris Game – [tetris.felixguo.me](https://tetris.felixguo.me)*

May. 2018 - Aug. 2018

- Remake of the Facebook game, Tetris Friends with a Javascript Tetris engine, Socket.io server, and HTML5 canvas client
- Includes features like sending lines to other players in the same lobby and spectating players in a lobby

## **EDUCATION >**

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### **University of Waterloo and Wilfrid Laurier University**

*Bachelors of Computer Science, Combinatorics and Optimization Minor*

2016 - 2021

*Bachelors of Business Administration, Finance Concentration*