

# Mark Winter

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Software programmer and mathematician who relishes puzzling over complex problems, learning and applying new skills, and contributing to close-knit, supportive teams.

## EDUCATION

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- University of St. Andrews** | Master of Arts (Honours) in Mathematics | *Scotland, UK* *Sep 2019 - Jun 2024*  
– **Dissertation:** A Walk along a Space-Filling Curve: Generating, Analysing, and Modeling Space-Filling Curves  
– **Relevant Coursework:** Object-Oriented Programming; Systems Level Programming; Computational Numerical Analysis; Automata, Languages and Complexity; Number Theory; Game Theory; Physics I-IV
- Stuyvesant High School** | *New York City, NY* *Sep 2015 - Jun 2019*

## WORK EXPERIENCE

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- Software Developer** | Skyscraper Foundry LLC. | *Remote; New York City, NY* *May 2022 - May 2024*  
– Developed both front- and back-end for an AI-assisted predictive planning tool using PyTorch and JavaScript to suggest optimizations to property portfolios for global skyscraper developers.  
– Analysed and compiled zoning data covering NYC's 120,000 zoning plots using R to present synthesis for architectural clients.  
– Created and delivered detailed PowerPoint presentations and summary documents for clients of all kinds.
- Bartender** | The Road Hole Bar at the Old Course Hotel | *Scotland, St. Andrews* *May 2021 - Sep 2021*  
– Provided friendly customer service through the unique challenge of the 2022 British Open.  
– Implemented alcohol-based solutions to customer needs by synthesizing unique taste profiles.  
– Maintained a working hotel bar, managing stock and cleanliness to internal and legislated regulations.
- Software Development Intern** | M. Arch Architects | *New York City, NY* *Jun 2019 - Aug 2019*  
– Worked as a back-end software developer under the small architecture firm M. Arch Architects to assist in the development of Zoner, the revolutionary new zoning application.  
– Programmed and refined throughout the entire development cycle using Ruby on Rails.  
– Gathered, parsed, and interpreted both public and private databases for information on over one hundred thousand zoning plots to build and inform the application.
- Volunteer Boatbuilder** | Village Community Boathouse | *New York City, NY* *Jan 2017 - Aug 2024*  
– Used common woodworking machines including bandsaws, lathes, and drill presses alongside various hand tools, to craft three rowboats for communal use: Zoë, Cormorant, and David T. Heim.  
– Engaged with design nuances and engineering constraints of boatbuilding by steaming wood, waterproofing, and ensuring optimal aquadynamic profile.

## PROJECT EXPERIENCE

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- Fishyphus of the Deep** | Sprodsoft *January 2023 - Present*  
Expansion of Ludum Dare Game Jam 52 project. Worked as a full-stack developer on a team of 3 to create a three-dimensional physics-based golf-like collectathon.  
– Learned and implemented tools such as Unity, Blender, and FLStudio, delivering high quality code to strict deadlines created to facilitate ongoing development.  
– Identified interesting design concepts to create, iterate and polish an extensive game world informed by user feedback and game balance testing.
- Box of Squingus** | Sprodsoft *October 2023*  
72-hour Ludum Dare Game Jam project. Worked as a full-stack developer on a team of 3 to create an innovative cooperative platformer game.  
– Delivered back-end code, front-end game design, and art to rapidly assemble a platformer game, scoring 16th for innovation against over 1000 submissions.  
– Spearheaded a rapid transition from Unity to Godot to accommodate changing project needs.  
– Developed the unique control system which hugely influenced the final character of the game.
- ExploraVison National Science Competition Winner** *Jan 2017 - Jul 2017*  
Researched and wrote a paper nationally recognized on the use of carbon nanospheres, a novel carbon formation for increased stability in quantum computation processes, earning a second place finish at the national level in the ExploraVison National Science Competition.

## SKILLS

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**Programming** : Proficient in C, C#, Python, Ruby, C++, Java. Experience with Go, Haskell, Rust, Typescript.  
**Development Tools** : Proficient with Git, Ruby on Rails, Godot, Unity, Agile development. Experience with Docker.  
**Web Development** : Proficient in HTML, CSS, SQL, JavaScript. Experience with React, PHP.  
**Data Science** : Proficient with NumPy, pandas, R, SciPy. Experience with PyTorch.  
**Other** : Proficient with Blender, FLStudio. Proficient in euphonium, trumpet, trombone.  
**Languages** : Fluent in English and Albanian. Proficient in Mandarin Chinese