

Philip Winston

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Senior Software Engineer – Native and Frontend Graphics & Visualization

- Native and browser-based high-performance interactive graphics systems
- C++ and Python native applications and C++/WASM and TypeScript in browsers.
- Extensive use of graphics APIs such as OpenGL, DirectX, Canvas, WebGL, three.js.
- Additional backend, data pipeline, and distributed system experience with AWS and GCP.

Experience

Accuray, Inc., Madison, WI, *Radiotherapy Devices and Medical Imaging* 2024 - Present
Senior Software Engineer - C++, WASM, WebGL, C#, TypeScript (Angular)

- Stabilized and released a radiotherapy treatment planning system with extensive in-browser graphics: 2d contours, 3d imagery volumes, and many interactive tools.
- End-to-end development across C++/C# backends, C++/WASM visualization engines, and Angular frontends. 300,000 lines of C++ running in-browser using Emscripten.
- Wrote performance and debugging tools to find and fix major performance issues.
- Found and fixed show-stopping bugs during crunch period.

Research Square, Durham, NC, *AI Academic Paper Editing* 2023 - 2024
Senior Software Engineer - Python, C#, Docker, Temporal, AWS

- Lead on three C# micro-services in an agile project environment.
- Maintained and improved micro-services and backend APIs in C#, Java, and Python.

Benchsci, Toronto, Canada, *AI drug discovery* 2022 - 2023
Senior Software Engineer - Python, Beam, BigQuery, GCP.

- Owned publish-specific ingest portions of a large machine-learning pipeline.
- Wrote XML parsers and other Python code to read tens of millions of academic papers.

ToneStone, Boston, MA, *Music-based VR game.* 2021 - 2022
Senior Software Engineer (Contract) - JavaScript, C#, Unity, VR

- Implemented game logic and graphics for a music-based video game.
- Originally a 2D JavaScript application, rewritten in C#/Unity for VR (Meta Quest 2).

The Chan Zuckerberg Initiative, Redwood City, CA. *Scientific Imaging.* 2020 - 2021
Senior Software Engineer (Contract) - Python, Beam, BigQuery, GCP.

- Added asynchronous tiled rendering to Napari, a multi-dimensional image viewer.
- Created a texture-atlas shader, quadtree renderer, and performance monitor, all pure-Python.

Camera, Brooklyn, NY, *self-driving car and mapping space.* 2017 - 2020
Senior Software Engineer - Python, C++, Docker, Step Functions, Lambda, Batch, AWS.

- Improved a C++14 system processing LiDAR point clouds and LadyBug5 panoramic imagery, including registration and colorization.
- Built and evolved three generations of distributed AWS workflows using Step Functions, Lambda, and Batch to run the above processing at scale

MVRSimulation, Brookline, MA, *Military Simulations*. 2011 – 2017

Lead Software Engineer- C++, Python, DirectX, Windows, AWS.

- Lead a team of five engineers responsible for three products
 - VRSG Scene Generator (C++), Scenario Editor (C#), Terrain Tools (ArcGIS plugin)
- Built a web-based performance and regression monitoring tool using AWS S3, Lambda.

Howard Hughes Medical Institute, Ashburn, VA, *Neuroscience Research*. 2009 – 2011

Senior Software Engineer - Python, C++, OpenGL, Linux.

- Added a quadtree to enable arbitrarily large images in an existing Python application.
- Created 2D and 3D visualizations of the reconstructed neurons.

MVRSimulation, Brookline, MA, *Military Simulations* 2006 – 2009

Senior Software Engineer- C++, Python, DirectX, Windows.

- Added features to their flagship C++ product: VRSG - Virtual Reality Scene Generator.
- Created a GPU-blending skinned animation system with 1000+ on-screen characters.

Harmonix Music Systems, Cambridge, MA, *AAA Console Games* 2003 – 2006

Lead Programmer - C++, Windows, PlayStation 2, Graphics.

- Lead programmer on Guitar Hero (PlayStation 2), implemented core 2D/3D gameplay.
- The Guitar Hero franchise generated over \$2B in revenue.

SensAble Technologies, Woburn, MA. *Haptic CAD software* 2000 – 2003

Senior Software Engineer - C++, Windows, OpenGL, Graphics.

- Contributed to 5 product releases of FreeForm (V2 through V6) at a variety of levels.
- CAD software was used for toys, dental implants, and other sculptural products.

Education

B.S., Computer Science, **Harvey Mudd College**, Claremont, CA.