PHILIP WINSTON

pwinston@gmail.com | WINCHESTER, VIRGINIA | (540) 303-1066

BENCHSCI. Toronto, Canada — May 2022 - February 2023
Senior Software Engineer *in a rapidly growing startup in the bio-pharmaceutical space*

As part of the Data Ingestion team, we processed tens of millions of documents containing terabytes of data. We used Python, Apache Beam, and many Google Cloud Platform services such as BigQuery. The rest of the pipeline was machine-learning-based, which interpreted text and images from the documents to build a network of connections between proteins, pathways, and diseases.

TONESTONE**,** Boston, MA — May 2020 - March 2022
Contract: Meta Quest 2 VR game

Worked on a team of five engineers on a 2D and later VR version of a music creation game. I collaborated with artists, designers, and other engineers. Using C# on Unity for Meta Quest 2. Mentored junior engineers on how to refactor an existing codebase, reduce code duplication, and improve stability and correctness.

THE CHAN ZUCKERBERG INITIATIVE**,** Redwood City, CA — May 2020 - Dec 2020
Contract: Multi-dimensional image viewer.

Wrote a brand-new quadtree-based real-time rendering system for the tiled display of large images inside Napari, an existing open-source image viewer. Using Python, NumPy, and Dask. Created a 25-minute video summarizing all the work, link available upon request.

CARMERA, Inc. Brooklyn, NY — April 2017 - April 2020
Senior Software Engineer *in the self-driving car and mapping space.*

Developed three generations of data pipelines in AWS. One pipeline processed LIDAR data and panoramic imagery, another system performed machine learning training with Tensorflow. We started with a non-cloud-native design and evolved towards cloud-native. We used many AWS Services such as Step Functions, Batch, Lambda, ECS, SNS/SQS, S3, EC2. Mentored junior developers.

MVRSimulations (formerly MetaVR), Brookline, MA. — 2011 – 2017
Lead Software Engineer *in the simulation industry.* — and 2006 – 2009

Led a team of five engineers who were responsible for three products: the main simulation and graphics engine, a scenario editor, and a terrain generation system. All team members were 100% remote. Mostly C++ and DirectX on Windows. Also Python and Javascript for tools.

Some individual contributions:

- A clustering system in C++ using a hierarchical round-earth spatial subdivision.
- Skinned Animation Feature allowed 1000+ characters on screen using GPU skinning
- Internal performance metrics and video review web service using Python, Javascript, jQuery, jQuery UI, and AWS. Wrote a “video diff” feature using structural similarity (SSIM).
- Debugging hard bugs and driving performance optimizations.

HOWARD HUGHES MEDICAL INSTITUTE, Ashburn, VA. 2009 – 2011
Senior Software Engineer *in neuroscience research.*

- Extended an existing interactive image-based tool to support arbitrarily large images.
- Python using OpenGL on Linux/Mac. Rendered at 60Hz with background paging.
- Used to view image stacks as large as 46000x43000x1700 (3TB).
- The software was used for research that was published in Nature, I was listed as a co-author.

HARMONIX MUSIC SYSTEMS, INC., Cambridge, MA. 2003 – 2006
Lead Programme*r in AAA console games.*

Guitar Hero, a PlayStation 2 game released Fall of 2005 by Red Octane

- Implemented 2D and 3D game elements using C++ and a proprietary graphics engine.
- Coordinated with game programmers, system programmers, QA, design, and other leads.
- Guitar Hero franchise had over $1B in sales by January 2008
- As lead coordinated with Project, Design, Art, QA, and other engineers.

EyeToy: AntiGrav, PlayStation 2 game released November 2004

- Wrote spatial sound effects, voice-over system, heads-up displays, tutorials.
- Wrote world editor in 3D Studio Max using MAXscript.

Build and CI System using Python/web.

- Created a custom multi-project, multi-platform build system.
- Notified artists when assets broke the build

EDUCATION

B.S., Computer Science**,** HARVEY MUDD COLLEGE**,** Claremont, CA.