PHILIP WINSTON

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Company	Duration	Development Environment
BenchSci	Full-time 10 months	Python on Google Cloud
ToneStone	Contract 1 year	C#/Unity on Android Meta Quest 2
Chan Zuckerberg	Contract 9 months	Python/NumPy on Multi-platform
CARMERA	Full-time 3 years	Python on AWS/Linux, some C++
MVRSimulation	Full-time 8 years	C++ on DirectX/Windows
HHMI	Full-time 2.5 years	Python on Linux/Mac
Harmonix Music Systems	Full-time 2 years	C++ on PlayStation 2
SensAble Technologies	Full-time 4 years	C++ on OpenGL/Windows

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

Using Python, Apache Beam, BigQuery and other Google Cloud products to ingest terrabytes of research papers into BigQuery, as part of the Data Ingestion group. This is the first step of large AI-based pipeline. We must parse tens of millions of XML-based documents with various formats.

TOBEVA SOFTWARE, LLC. Winchester, VA   April 2020 - Present
My own consulting and contracting company.

    ToneStone, Boston, MA   February 2021 - March 2022
    VR game for Meta Quest 2 using C# and Unity.

    Worked on a team of five engineers on a 2D/Umajin and VR/Unity version a music creation game. I collaborated with artists, designers, and other engineers. Mentored junior developers.

    The Chan Zuckerberg Initiative, Redwood City, CA   May 2020 - Dec 2020
    Multi-dimensional image viewer. Using Python, NumPy, and Dask.

    I 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.

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..

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

Lead a team of five engineers who together were responsible for three products: the main simulation and graphics engine, the scenario editor, and a terrain generation system. All team members were 100% remote. Core product used 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).

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

Guitar Hero, PlayStation 2 game published Fall 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, other leads.
- Guitar Hero franchise had over $1B in sales by January 2008

Build and CI System using Python/web.
- Created a custom multi-project, multi-platform build system.

SENSABLE TECHNOLOGIES, INC., Woburn, MA.   1999 – 2003
Senior Software Engineer *for haptic-enabled CAD software.*

- Contributed to 5 product releases of FreeForm (V2 through V6) at a variety of levels
- Served on the 4-person Architecture Board; worked on an external API and plug-in architecture.
- Co-inventor on US Patent 6,671,651 3-D Selection and Manipulation with a Haptic Interface.
- The FreeForm application was C++ on OpenGL/Windows.

UNC COMPUTER SCIENCE DEPARTMENT, Chapel Hill, NC.   1996 – 1999
Research Engineer at *University Graphics and Image Research Laboratory.*
- Multi-threaded server in C++ on Windows running at over 2000Hz.
- Controlled custom 3000 LED ceiling and custom camera cluster.
- Performed real-time geometric computations and served pose data over the network.
Commercialized as the *HiBall Wide-Area Precision Tracker* by 3rdTech.

EDUCATION

B.S., Computer Science**,** HARVEY MUDD COLLEGE**,** Claremont, CA.   1991 – 1995