

John Hoffer

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EDUCATION

HARVARD COLLEGE

BA: 2016 | GPA: 3.51

CONCENTRATION: NEUROBIOLOGY

SECONDARY: COMPUTER SCIENCE

SKILLS

PROGRAMMING

Use on daily basis:

GLSL • Python • Slurm

JavaScript (D3) • Node • TypeScript

Use in past projects:

C++ • PHP • SQL • MATLAB • \LaTeX

Learning:

Lua • Haskell • Wolfram

CUDA • .NET • C#

Daily Workflow:

Bash • Tmux • Vim • RegEx

DESIGN

Current Projects:

Blender (Python API) • X3D • CSS

Frequent Usage:

3ds Max • Inkscape • Gimp

COURSEWORK

COMPUTER SCIENCE

Rendering and Image Processing

Dynamic & Stochastic Processes

Computer Graphics

Visualization

LIFE SCIENCES

Computational Neuroscience

Principals of Neuroengineering

Computational Cognitive Neuro.

Cellular Basis of Neural Function

Drug Discovery and Development

EXPERIENCE

HARVARD SEAS | FELLOW

February 2016 — current | Visual Computing Group, Cambridge, MA

- Built a pipeline to render ray-tracings from CNN image reconstructions.
- Wrote a web server to handle terabytes of image data efficiently in real-time
- Contributed to 5 open source projects
- Developed several UIs to give the research community real-time collaborative access to neural reconstructions
- Negotiated deliverable APIs for a multi-million dollar grant

WYSS INSTITUTE AT HARVARD | MICROFABRICATION INTERN

February—August 2015 | Human Organs-on-Chips, Boston, MA

- Designed components for development of novel microfluidic cell culture assays
- Developed and tested improved microscale fabrication procedures

MASSACHUSETTS GENERAL HOSPITAL | RESEARCH INTERN

June—August 2013 | Psychiatric Genetics Unit, Boston, MA

- Prepared DNA to correlate cognitive traits with single DNA base pairs
- Identified possible genes for future study through a literature review

KEY OPEN SOURCE PROJECTS

BUTTERFLY IMAGE SERVER January 2018 | Harvard VCG | Github Link

- Primary developer of terabyte-scale image server in daily use for automated and interactive evaluation of CNN image reconstructions.

OPENSEADRAGON GL January 2017 | OpenSeadragon | Github Link

- Enabled real-time parallel image processing on large-scale images in browser.

JOURNAL PUBLICATIONS

SCALABLE INTERACTIVE VISUALIZATION FOR CONNECTOMICS

August 2017 | Informatics | PDF Link

- Designed and analyzed experiments on data transfer from network file systems
- Documented the design and implementation of our servers and interfaces

Ray-tracing of $100\mu\text{m}$ -long neural processes captured at 4nm resolution.