

Christian Swinehart

CURRICULUM VITAE

SKILLS

LANGUAGES

Python, JavaScript/TypeScript, C, Rust, Bash, Make, Objective-C, Perl, C++, Java, Scheme, Logo

FRONT-END

React, Lodash, Chroma, Mapbox, PostCSS, Vite, jQuery, Handlebars

SERVER-SIDE

Docker, Nginx, Apache, Caddy, Postgres, Prisma, CouchDB, Express, Astro, Eleventy, Tornado, Flask

COLLABORATION

Figma, Git, Mercurial, Linode, GitHub Actions, Travis

APPLICATIONS

Illustrator, InDesign, After Effects, Photoshop, FontLab, Excel, Max/MSP

GRAPHICS ENVIRONMENTS

Canvas, SVG, Quartz, D3, P5, WGPU, Three.js, Zdog, PlotDevice

DATA ANALYSIS

NumPy, Pandas, SQL, Plot, Vega, Seaborn, BeautifulSoup, MATLAB, *Numerical Recipes in C*

SEE ALSO

PORTFOLIO

samizdat.co

CODE REPOSITORY

github.com/samizdatco

CONTACT

christian@samizdat.co

PROFESSIONAL EXPERIENCE

OFFICE OF UNSPECIFIED SERVICES | Founder & Principal (2013–)

A design, data visualization, and software development consultancy. Clients include Yale School of Management, The New York Times, Citibank, Allied Works, System, Boxcar Press, Mitch Epstein, Ennead, and Diller Scofidio + Renfro.

COLUMBIA, PRATT, M/I/C/A, PARSONS, & R.I.S.D. | Adjunct Professor (2015–)

Designed and taught 21 courses, primarily in [data visualization](#), but also including electives in creative coding, databases, front-end development, and graphic design. Taught students affiliated with computer science, journalism, communications design, information design, and data science programs at the graduate and undergraduate level.

OUR WORLD IN DATA | Sr. Visualization Engineer & Dataviz Lead (2023–2024)

Created bespoke [visualizations](#) in collaboration with OWID's researchers and led the design and development of *Grapher*: the chart-rendering engine that powers the site's interactive visualizations. Oversaw a [redesign](#) of *Grapher*'s ux, designed and built a revamped details-on-demand system for chart tooltips, and [prototyped](#) a data-interpolating time-scrubber for bubble chart animations.

BLOOMBERG VISUAL DATA | Visualization Developer (2011–2013)

Designed and developed interactive data visualization products covering politics, society, the environment, and the global economy. Contributed to award winning products including the *Bloomberg Billionaires Index*, the *State by State* analytics tool, and the *Industry Market Leaders* dashboard.

PENTAGRAM | Interaction Designer & Lead Developer (2007–2010)

User experience and development on Lisa Strausfeld's National Design Award winning team. Clients included Gallup, Lincoln Center, OLPC, Litl, Maya Lin, and the Museum of Arts and Design. Also developed interactive sites and experiences for Abbott Miller and designed interfaces for Michael Bierut and Paula Scher.

EDUCATION

RHODE ISLAND SCHOOL OF DESIGN | M.F.A. in Graphic Design (2008)

Thesis work centered on information graphics, physicalized interfaces, and typography. Received the school's [Award of Excellence](#) in my final year and an intramural research grant to study Ramon y Cajal in 2006.

BRANDEIS UNIVERSITY | Ph.D. in Computational Neuroscience (2005)

Studied under Laurence F. Abbott with a [dissertation](#) on a biologically plausible mechanism for reinforcement learning in neural networks. Our research was [published](#) in the journals *Network*, *Neural Computation*, and *Neurocomputing*, and presented at the *Society for Neuroscience*, *Cosyne*, and *CNS* conferences.

DICKINSON COLLEGE | B.S. in Cognitive Science (1998)

Graduated with a self-developed major based on a curriculum I designed by combining psychology, neurobiology, computer science, and philosophy coursework with an independent thesis project on Hebbian learning.

directed by former treasury secretary
Timothy Geithner

published in the April 2018 issue of the
IEEE journal [Computer](#)

in conjunction with a rebranding project
at Critical Mass

won the Grand Prize in the 2013
[Information is Beautiful Awards](#)
and featured in [The Best American
Infographics 2014](#)

winner at Type Directors Club 55
for Best Website and included in Lisa
Strausfeld's National Design Award

featured in [étapes magazine](#), [Slate](#), [Fast
Company](#), [Gizmodo](#), [Brain Pickings](#), &
[Atlas Obscura](#)

includes [sketches](#) of various plotlines
[intersecting](#) and a [3D model](#) of
chronology vs page order

reprinted in [You are Here N.Y.C.](#) (2016)

bird syntax visualizations featured in
[Your Idea Starts Here](#) (2016)

SELECTED CLIENT WORK

YALE SCHOOL OF MANAGEMENT (2019) <[yale.samizdat.co](#)>

Yale's *Program on Financial Stability* was created in the aftermath of 2008 and engages in research that leaves us better prepared to respond to (or ideally prevent) future economic meltdowns. Its *New Bagehot Project*—which I helped design and prototype—aims to exhaustively catalog the history of financial crises and rate the effectiveness of the various attempts at ameliorating them.

LAWRENCE BERKELEY NATIONAL LABORATORY (2017)

Designed figures for an IEEE publication written by my longtime scientific collaborator, Dr. Kristofer Bouchard.

CITIBANK ACCOUNT DASHBOARD (2015)

Developed visualizations as part of a redesign of the account interface shown to checking and credit card customers on the web and mobile apps. [My diagrams](#) were used to show trends across transaction histories and helped monitor balances, expenses, and savings goals.

BLOOMBERG BILLIONAIRES INDEX (2014) <[bloom.samizdat.co](#)>

The Billionaires Index visualized the wealth of the world's 500 richest people—information previously only available through the Bloomberg Terminal. It was created in collaboration with the Visual Data team where I was the principal front-end developer and interaction designer as well as architecting the data API.

DILLER SCOFIDIO + RENFRO WEBSITE (2008)

A pre-webGL instance of 3D interaction design on the web, this portfolio site presented the work of the artists and architects at this groundbreaking firm within a VR-like, spatially organized [environment](#).

SELF-INITIATED DESIGN PROJECTS

ONE BOOK, MANY READINGS (2022, 2010) <[samizdat.co/cyoa](#)>

A visual analysis of the *Choose Your Own Adventure* books of my youth. The project examines the structure of choices in the books and how it changed over the course of the series. Animations allow you to see patterns among the many unique paths through each of the books.

INFINITE DIGEST (2021) <[samizdat.co/projects/infinite-digest](#)>

A collection of visualizations examining the chronological nonlinearities within David Foster Wallace's novel *Infinite Jest*. Its length, enormous cast of characters, and flashback-heavy plotting are a case study in [fabula and sjužet](#) diverging.

BDBGs! (2010) <[samizdat.co/digital/bdbg](#)>

After scraping data from the Bedbug Registry and New York's 311 system, I created an interactive map to view incidents and animate the sequence over time. Clicking the play button begins the march from 2007's relatively quiet scene to the explosion of reports in 2010 & '11.

ECHOLALIA (2006) <[samizdat.co/digital/echolalia](#)>

In collaboration with Michael Brainard's lab at U.C.S.F., I visualized statistical patterns in Zebra Finch vocalization data as a way to unravel the 'grammar' of birdsong and the neural circuitry underlying it.

high performance, high quality, cross-platform graphics using Google's [Skia](#) rendering library

used in all of my classes as a pedagogical tool and for production of print-focused visualizations

over 3,000 [stars](#) and [forks](#) on github

SELECTED OPEN SOURCE TOOLS

SKIA CANVAS (2020) <github.com/samizdatco/skia-canvas>

A javascript library for Node.js that enables the creation of bitmap and vector files outside of the browser. It provides a drawing model identical to the HTML canvas element via an emulation I wrote in [Rust](#) for speed and memory-safety.

PLOT DEVICE (2014) <plotdevice.io>

PlotDevice is a Macintosh application used for computational graphic design. It provides an interactive Python environment where you can create two-dimensional graphics and output them in a variety of vector, bitmap, and animation formats. It was created both as a sketch environment for exploring generative design and as a general purpose graphics library for use in external Python programs.

ARBOR.JS (2011) <arborjs.org>

A number of my projects have made use of force-directed layout routines for constructing network diagrams. Arbor is a javascript library that abstracts away the physics simulation and provides hooks for rendering the resulting graphs in the developer's choice of canvas, SVG, or the HTML DOM.

TEACHING

COLUMBIA UNIVERSITY (2022-)

Currently teaching [Introduction to Data Visualization](#) in the Computer Science department.

PRATT INSTITUTE (2019-2022)

Taught [Data Integrity](#) for four years as an elective to students in the Communications Design department and grads in the Packaging, Identities, and Systems Design program.

MARYLAND INSTITUTE COLLEGE OF ART (2020-2021)

Designed and taught electives on [Information Visualization](#), [Front-end Development](#), and [Creative Coding](#) in the Graphic Design department.

PARSONS (2017-2020)

Taught for four years as part of the M.S. in Data Visualization program. I revamped the [Data Visualization & Information Aesthetics](#) course, supervised masters thesis projects in [Major Studio II](#), and covered the care and feeding of relational and NoSQL databases in [Data Structures](#).

RHODE ISLAND SCHOOL OF DESIGN (2015-2017)

Designed [Lies, Damned Lies, and Data Visualization](#)—the first course on dataviz in the Graphic Design department—which I taught to grads and seniors for three years. Also co-taught a semester of [Graduate Studio I](#) with Bethany Johns, head of the grad program.

*reviewed by the Digital Humanities
Specialist at Stanford Library*

[25 citations](#) listed on Google Scholar

*[designed & typeset](#) using a custom
L^AT_EX stylesheet of my own creation*

posters from [2002](#), [2003](#), & [2004](#)

poster from [2004](#)

poster from [2003](#)

PUBLICATIONS

PATTERN RECOGNITION (2008)

M.F.A. thesis | Rhode Island School of Design
advisor: Matthew Monk
program head: Bethany Johns

DIMENSIONAL REDUCTION FOR REWARD-BASED LEARNING (2006)

Network: Computation in Neural Systems 17(3): 235–252

RESPONSE MODULATION:

A MECHANISM FOR THE GUIDANCE OF LEARNING (2005)

Ph.D. dissertation | Brandeis University
advisor: Laurence F. Abbott
program head: Eve Marder

SUPERVISED LEARNING THROUGH NEURONAL RESPONSE MODULATION (2005)

Neural Computation 17: 609–631

CONTROL OF NETWORK ACTIVITY THROUGH NEURONAL RESPONSE MODULATION (2004)

Neurocomputing 58–60: 327–335

CONFERENCE PRESENTATIONS

SOCIETY FOR NEUROSCIENCE (2002–2004)

Orlando, New Orleans, & San Diego

COSYNE: COMPUTATIONAL AND SYSTEMS NEUROSCIENCE (2004)

Cold Spring Harbor Laboratory, Long Island

CNS: ANNUAL COMPUTATIONAL NEUROSCIENCES MEETING (2003)

Alicante, Spain