



Jesse Spielman

Birmingham, UK
 Jesse.Spielman@gmail.com
 +44 7808 861922
 +1 917-769-8805
 www.heavyimage.com
 jessespielman
 heavyimage
 @mastodon.social@heavyimage
 nm2993340

Statement

Passionate, personable and self-motivated **computer scientist** seeks challenging and socially conscious opportunities. Currently working on PhD corrections to my thesis in ML Cybersecurity; expected graduation: **Summer 2026**.

Education

- | | |
|---|---|
| <p>PhD University of Birmingham, School of Computer Science</p> <ul style="list-style-type: none"> • Thesis: SCAvenger: Software Side-Channel Attacks on Neural Networks • Keywords: Adversarial ML, Side Channel Attacks, TEEs • Supervisors: Dr. David Oswald and Dr. Mark Ryan • Examiners: Dr. Maire O'Neill (external), Dr. Tom Chothia (internal) • Funding: Intel Corporation • Teaching Assistant: Security and Networks, Winter '21 | <p>Birmingham, UK
Feb 2021 – present</p> |
| <p>MSc University of Birmingham, School of Computer Science</p> <ul style="list-style-type: none"> • Degree: Advanced Computer Science with Distinction • Dissertation: Hey Alexa: Who's Mallory? An Amazon Alexa Intercept Appliance • Modules: ML, Operating Systems, Cryptography, Parallel Computing, Data Mining, Mobile App Development • Board: AFNOM ethical hacking | <p>Birmingham, UK
Oct 2019 – Oct 2020</p> |
| <p>BFA Rochester Institute of Technology, School of Film and Animation</p> <ul style="list-style-type: none"> • Thesis: Visual Effects (VFX) for two senior films • Minor: Computer Science / Concentration: Communications | <p>Rochester, USA
Sept 2004 – July 2008</p> |

Work Experience

- | | |
|--|--|
| <p>Durham University, Postdoctoral Research Associate - CHERI-Zephyr++</p> <ul style="list-style-type: none"> • Continued work porting Zephyr to use CHERI memory safety technology. • Research into using compartmentalization features and recovery from CHERI exceptions. | <p>Durham, UK
Apr 2026 – present</p> |
| <p>Base FX London, Head of Pipeline</p> <ul style="list-style-type: none"> • Planned and implemented greenfield 'satellite' pipeline for London office of Base FX. • Designed, implemented and supervised development on all tools including publishers, color management, review and transfer tools. • Extensive use of hook-based customization for project-specific customizations. • Supervised one Senior Developer. | <p>London
Dec 2025 – Apr 2026</p> |
| <p>University of Birmingham, Research Assistant - CHERI-Zephyr++</p> <ul style="list-style-type: none"> • Investigated CHERI compilation / runtime errors in Zephyr tests; focus on heap allocation. • Adjusted Zephyr RTOS C code to use capabilities if CHERI hardware is available. • Configure build system to generate libclang_rt.a static libraries for the codasip platform. • Helped more efficiently restructure docker build workflows into stages. | <p>Birmingham, UK
Sept 2025 – Jan 2026</p> |

Lipsync Post, Head of Pipeline

- Maintained, improved and pruned the **legacy pipeline** systems (e.g. publishing, color) used by all projects at Lipsync, including the 2024 Oscar Winning film, **The Brutalist**.
- Modernized **color workflow** e.g. synchronization between QT generation and reviews.
- Built supervisor-focused tooling such as **'smart' review tools** for Nuke and Hiero.
- Worked on next-generation pipeline using **rez** and puppet.
- **Supervised/Mentored** one Junior Developer.

London
Aug 2021 – June 2025

Robot Talk, Application Vulnerability Tester

- Performed **security testing** for a multi-platform Electron / Go based app.
- Used **MITM proxy** and **fuzzing tools** to inspect traffic and API endpoints.
- **Compiled vulnerability report** as part of overall client security remediation audit.

New York City (Remote)
Dec 2020

Preymaker Studio, Pipeline Consultant

- Consulting on pipeline, infrastructure and artist tools
- Core tasks included Flame and Windows pipeline (Shotgrid) integration

New York City (Remote)
June 2020 – July 2021

Framestore, Senior Pipeline Technical Director

Hired by Framestore for my unique combination of experience as an artist and programmer to be the **Pipeline/2D** Technical Director for the compositing and editorial aspects of their new Integrated Advertising pipeline (A pipeline technical director is a **development and operations** role involving writing code and managing the infrastructure that supports production).

- Personally co-designed / implemented **core 2d workflows**: Ingest Publishing, 'The Lock-down', Interactive Publish Visualization Badges, Prerender Bypass, Editorial Ingest and Conform, Review and Export to Client.
- Wrote **GUI** (PyQt / PySide) and **CLI** tools to interact with the pipeline.
- Customized the Loader / Workfiles Manager with **actions** to accelerate artist workflows.
- Helped integrate automated **OCIO/ACES** color management into our environment.
- Developed management tools to leverage the **metadata web** built during production.
- Fed **improvements** to SGTK apps back to Shotgun based on studio / artist workflows.
- Developed renderfarm, asset library and client download **integration** for Nuke and Hiero.
- Wrote **show-specific tools** e.g. a screenspace rigging tool for Nuke.
- Extended the stock SG **Hiero Export** app with timeline exports, audio and modular updates to SG fields.
- **Debugged and Optimized** complex Nuke / Hiero scripts from production, often with gdb.
- **Managed code releases** for multiple libraries across dozens of projects and multiple versions of Nuke / Hiero simultaneously **across four time zones**.
- Managed and **defended the codebase**, insisting on global collaboration and relevance before making changes; Saying **'no'**.
- Helped integrate **Shotgun / SGTK** into the studio and educate colleagues on these tools.
- **Clearly communicated** complex workflows and tools to artists.
- **Mentored** junior members of the team.
- Co-winner of **2015 Shotgun 'Shotty' Award** for our team's work with SGTK.

New York City and London
2014 – 2019

Freelance and Staff Compositor, Compositor

- VFX Compositor (artist) at **20+ high-end** VFX studios.
- Performed **start-to-finish compositing** (paint and roto, 2d and 3d tracking, keying, color correction and full comp work) for at least 30 TV and Film projects in Nuke/Shake.
- Proficient at both **'invisible effects'** and complex multi-pass **CG compositing**.
- Key projects: the Oscar nominated **"Inside Llewyn Davis"**, James Bond Film **"Spectre"**.
- More information is available on my **IMDB profile** and my **2013 showreel**.

New York City and London
2008 – 2015

Relevant Skills

Programming Languages: Proficient with Python, C, Java/Android, shell scripting, and Processing.

Other Computer Skills: git, gdb, docker, linux administration, reverse engineering, maker technologies.

Graphic Software: High-end visual effects software (Nuke, Hiero, Maya), Camera tracking tools, Image Editors.

Soft Skills: Excellent written / spoken communication, collaboration, problem solving, leadership and mentoring.

Languages: English (native).

Publications

Activation Functions Considered Harmful: Recovering Neural Network Weights through Controlled Channels Oct 2025

Jesse Spielman, David Oswald, Mark Ryan, Jo Van Bulck
<https://doi.org/10.48550/arXiv.2503.19142> (RAID 2025)

Faulty Point Unit: ABI Poisoning Attacks on Trusted Execution Environments June 2022

Fritz Alder, Jo Van Bulck, *Jesse Spielman*, David Oswald, Frank Piessens
<https://dl.acm.org/doi/full/10.1145/3491264> (DTRAP 2022)

Talks and Workshops

Missing Semester Birmingham, UK
Co-founder / session leader for 2-3 sessions per year of the UoB fork of MIT's **Missing Semester**. Topics: debugging, text editors, collaborative version control and cloud computing. 2023 – 2026

Talk: Activation Functions Considered Harmful Folsom, California (Remote)
Gave internal tech talk on my research for Intel employees. Apr 2025

Talk: Activation Functions Considered Harmful Birmingham, UK
Gave lightning talk at UK RISE's (Research Institute in Secure Hardware and Embedded Systems) '24 summer school and conference. July 2024

LD_PRELOAD and You Birmingham, UK
Gave lightning talk ([Slides](#) / [Materials](#)) about LD_PRELOAD for **AFNOM**. Dec 2020

Spectre Title Sequence: A Case Study Stuttgart, Germany
Gave talk about our team's work on the James Bond film, Spectre at **FMX**. Apr 2016

Syntastic for Pipeline Development London
Gave **talk** at **Vim London** about the syntastic plugin. Apr 2015

VFX Photogrammetry with VisualSFM New York City
Gave talk about integrating Photogrammetry workflows into VFX pipelines at an NYC Nuke Users Group (NUG) Meeting. Dec 2013

Writing a Music Visualizer from Scratch New York City
Taught workshop at **ITP Camp @ NYU** on writing music visualizers in processing. July 2013

Generative 3d Modeling with Structure Synth New York City
Taught workshop at **ITP Camp @ NYU** on procedural modeling with Structure Synth. July 2012

Certifications

Fundamentals of Accelerated Computing with Modern CUDA C @ NVIDIA Jan 2025
Certificate in modern C++ CUDA programming from 2-day in-person NVIDIA training.

Certified Generalist Software Engineer
Earned certificate from Triplebyte hiring service.

Mar 2019

Workshops, Groups and Events

AFNOM Ethical Hacking society @ UoB

Board member of UoB's ethical hacking society. Designed / competed in CTFs, lead sessions (e.g. Android and web hacking) and helped ensure the continuity of the society.

Birmingham, UK
2020 – 2026

PwnEd 5 CTF @ University of Edinburgh

Part of a team of finalists at ctf / conference hosted by the university's hacking society, SIGINT.

Edinburgh, UK
Mar 2024

CSAW Embedded Security Challenge

Our team came in second place for a **CTF-style event** about embedded hardware security.

Valence, France
Nov 2023

Data Study Group @ Turing Institute

Two-week biomedical-themed data-science/ML hackathon. Challenge involved unsupervised discovery and alignment of biological structures in electron tomography volumes. Developed skill with Jupyter Studio, numpy, data exploration and 3d visualization.

London
Sept 2021

Hack the Solar System Hackathon @ AMNH

Honorable Mention for work as part of a team that **helped extract** the positions of 3d metal 'bubbles' found inside volumetric scans of meteorites for the American Museum of Natural History's annual Hackathon.

New York City
Feb 2019

NASA Spaceapps Hackathon

Part of a team that design a tool that leveraged NASA's Earth observations data APIs to characterize land cover/land use conditions at informal settlements.

New York City
Oct 2018

Hack the Deep Hackathon @ AMNH

Part of an ad-hoc team which **wrote a tool** to help generate 3d geometry from photographs of 50nm wide slices of cellular anatomy inspired by rotoscoping.

New York City
Feb 2018

Machine Learning for Artists @ Machines Room

Workshop introducing the theory / application of machine learning for creative and artistic practice; taught by **Gene Kogan**.

London
2017

ITP Camper @ New York University

Attended 2x summer workshops on creative coding, 3D printing and maker technologies.

New York City
2012-2013

Volunteering

Volunteer: Georgia Democratic Party

Volunteered for the DNC to help remotely support the recount in Georgia.

- Helped with 'Turf Cutting' to help volunteers cure ballots.
- Technical adviser to 'special cases' team focused on disenfranchised voters.
- Managed / cleaned data in VAN and Google Sheets to support researchers.

Georgia, USA (Remote)
Jan 2021

Volunteer: DNC National Voter Projection Hotline

Volunteered for the DNC during the 2020 election.

- Performed technical support for 12,000+ virtual call center volunteers who were assisting voters around the country for the 2020 Presidential election.
- Improved browser plugin to assist with automating downloads of shift data.
- Helped support early AM US shift from Europe.

National, USA (Remote)
Nov 2020

Engineer for Radio Lollipop @ Great Ormond Street Hospital for Children

Help maintain / update the technical systems for the radio station at the children's hospital.

London
2015 – 2017

Open Source Contributions / Personal Projects

Activation Functions Considered Harmful Artifact

Oct 2025

Code which demonstrates our model stealing attack against Tensorflow neural networks running inside SGX.

MapleMatrix

Oct 2020

Man-in-the-middle wireless access point inside a docker container. Based on mitm-router.

nuke.vim

June 2016

Plugin for bridging the Nuke compositor's built-in script editor and vim.

Free Photogrammetry workflow

Aug 2013

Blog post on structure-from-motion pipelines that was written up in Make magazine.

Interests

Pub Quizzes, Music Visualization, Mastodon Bots, Microcontroller Projects, Advent of Code, Photogrammetry, Pen Plotting, Board Games, Blues Music, CtFs, Retrocomputing.