



# Jesse Spielman

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## Statement

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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

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

## Work Experience

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| <p><b>Base FX London</b>, Head of Pipeline</p> <ul style="list-style-type: none"> <li>• Planned and implemented greenfield '<b>satellite</b>' pipeline for London office of Base FX.</li> <li>• Designed, implemented and supervised development on <b>all</b> tools including publishers, color management, review and transfer tools.</li> <li>• Extensive use of <b>hook-based customization</b> for project-specific customizations.</li> <li>• <b>Supervised</b> one Senior Developer.</li> </ul>  | <p>London<br/>Dec 2025 – present</p>           |
| <p><b>University of Birmingham</b>, Research Assistant - <b>CHERI-Zephyr++</b></p> <ul style="list-style-type: none"> <li>• Investigated CHERI compilation / runtime errors in Zephyr tests; focus on <b>heap allocation</b>.</li> <li>• Adjusted Zephyr RTOS C code to use <b>capabilities</b> if CHERI hardware is available.</li> <li>• <b>Configure build system</b> to generate libclang_rt.a static libraries for the codasip platform.</li> <li>• Helped more efficiently restructure <b>docker build workflows</b> into stages.</li> </ul>  | <p>Birmingham, UK<br/>Sept 2025 – Jan 2026</p> |
| <p><b>Lipsync Post</b>, Head of Pipeline</p> <ul style="list-style-type: none"> <li>• Maintained, improved and pruned the <b>legacy pipeline</b> systems (e.g. publishing, color) used by all projects at Lipsync, including the 2024 Oscar Winning film, <b>The Brutalist</b>.</li> <li>• Modernized <b>color workflow</b> e.g. synchronization between QT generation and reviews.</li> <li>• Built supervisor-focused tooling such as '<b>smart</b>' review tools for Nuke and Hiero.</li> <li>• Worked on next-generation pipeline using <b>rez</b> and puppet.</li> <li>• <b>Supervised/Mentored</b> one Junior Developer.</li> </ul> | <p>London<br/>Aug 2021 – June 2025</p>         |

### Robot Talk, Application Vulnerability Tester

New York City (Remote)

- 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.

Dec 2020

### Preymaker Studio, Pipeline Consultant

New York City (Remote)

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

June 2020 – July 2021

### Framestore, Senior Pipeline Technical Director

New York City and London

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).

2014 – 2019

- 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.

### Freelance and Staff Compositor, Compositor

New York City and London

- 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**.

2008 – 2015

## Relevant Skills

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**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

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- 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

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- 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

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- 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** Mar 2019  
Earned certificate from Triplebyte hiring service.

## Workshops, Groups and Events

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- AFNOM Ethical Hacking society @ UoB** Birmingham, UK  
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. 2020 – 2026

<b>PwnEd 5 Ctf @ University of Edinburgh</b> Part of a team of finalists at ctf / conference hosted by the university's hacking society, SIGINT.	Edinburgh, UK Mar 2024
<b>CSAW Embedded Security Challenge</b> Our team came in second place for a <b>CTF-style event</b> about embedded hardware security.	Valence, France Nov 2023
<b>Data Study Group @ Turing Institute</b> 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
<b>Hack the Solar System Hackathon @ AMNH</b> Honorable Mention for work as part of a team that <b>helped extract</b> 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
<b>NASA Spaceapps Hackathon</b> 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
<b>Hack the Deep Hackathon @ AMNH</b> Part of an ad-hoc team which <b>wrote a tool</b> to help generate 3d geometry from photographs of 50nm wide slices of cellular anatomy inspired by rotoscoping.	New York City Feb 2018
<b>Machine Learning for Artists @ Machines Room</b> Workshop introducing the theory / application of machine learning for creative and artistic practice; taught by <b>Gene Kogan</b> .	London 2017
<b>ITP Camper @ New York University</b> Attended 2x summer workshops on creative coding, 3D printing and maker technologies.	New York City 2012-2013

## Volunteering

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<b>Volunteer: Georgia Democratic Party</b> Volunteered for the DNC to help remotely support the recount in Georgia. <ul style="list-style-type: none"> <li>Helped with 'Turf Cutting' to help volunteers cure ballots.</li> <li>Technical adviser to 'special cases' team focused on disenfranchised voters.</li> <li>Managed / cleaned data in VAN and Google Sheets to support researchers.</li> </ul>	Georgia, USA (Remote) Jan 2021
<b>Volunteer: DNC National Voter Projection Hotline</b> Volunteered for the DNC during the 2020 election. <ul style="list-style-type: none"> <li>Performed technical support for 12,000+ virtual call center volunteers who were assisting voters around the country for the 2020 Presidential election.</li> <li>Improved browser plugin to assist with automating downloads of shift data.</li> <li>Helped support early AM US shift from Europe.</li> </ul>	National, USA (Remote) Nov 2020
<b>Engineer for Radio Lollipop @ Great Ormond Street Hospital for Children</b> Help maintain / update the technical systems for the radio station at the children's hospital.	London 2015 - 2017

## Open Source Contributions / Personal Projects

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<b>Activation Functions Considered Harmful Artifact</b> Code which demonstrates our model stealing attack against Tensorflow neural networks running inside SGX.	Oct 2025
<b>MapleMatrix</b> Man-in-the-middle wireless access point inside a docker container. Based on mitm-router.	Oct 2020

**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**

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