



# Stephen Buchanan: Curriculum Vitae

## Essential Information

**AGE:** 42 (born 4 August 1981)  
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## Key Skills

### Technology specialisations

Full stack web development (React, NodeJS, SvelteKit), interactive installations, computer vision, realtime 2D/3D graphics, lighting control, microcontrollers, game development, distributed architecture

### Programming languages

*Current:* Rust, TypeScript, C++, GLSL, WGSL, Python.  
*Past:* Java, PHP

### Other skills

Linux, Docker, 3D modelling (Rhino) and 3D printing, UX design (Figma), TouchDesigner, Video editing, Technical writing,

## Employment History

### Senior Creative Technologist, Random Studio

02/2017 - Present (Amsterdam, NL)

**Client Portfolio:** Successfully delivered high-tech projects for renowned clients in the fashion/retail sector, including Nike, Chanel, Boucheron, Vans, and FarFetch.

**Project Scope:** Specialised in developing interactive installations with operational lifetimes ranging from single-day events to long-term installations spanning weeks or years. Additionally, adept at crafting web-based solutions such as microsites and website prototypes.

### Technical Expertise:

- **Frontend Development:** Proficient in React (with TypeScript), WebGL libraries such as ThreeJS, A-frame, and PixiJS.
- **Graphics, video:** C++ for high-performance graphics, especially openFrameworks. I use ffmpeg extensively.
- **Backend Development:** Skilled in NodeJS (with TypeScript) and Rust for backend infrastructure, with experience in Python for scripting and machine learning workflows.
- **Machine Learning:** Developed custom models using PyTorch, including training YOLOv6 models for computer vision tasks.
- **Infrastructure & Deployment:** Extensive experience in deploying on Ubuntu Linux, Raspberry Pi, and Docker-based environments, employing microservices architecture and MQTT for communication.
- **Monitoring & Management:** Utilised tools such as Datadog for system performance monitoring and managed installations both on-site and remotely using SSH, reverse proxying, and TeamViewer.

- **Audio & Music:** Proficient in WebAudio API (for my own custom libraries), but also HowlerJS and ToneJS, and as well as audio editing utilities for generative music and sound design.
- **Open Source Contribution:** Contributed significantly to the development of Tether, a suite of libraries and tools aimed at improving the developer experience for interactive installation projects.

**Hardware Proficiency:** Experienced with a wide range of sensors including LIDAR and camera-based systems, controllable LED lighting, projectors, and digital signage systems. Also developing software for Arduino and ESP32 microcontrollers.

**Methodologies:** Adhered to Agile methodologies with a focus on test-driven development, leveraging tools like Jest for TypeScript/Javascript projects. Proficient in both Object-oriented and functional programming paradigms.

**Design Skills:** Capable of designing custom enclosures and mounting solutions using CAD tools such as Rhino for 3D printing.

## Head: Interactive Design, Mann Made Media

08/2012 -12/2016 (Johannesburg, SA)

**Team Leadership and Project Management:** Led a dynamic team of up to 4 developers and coordinated multidisciplinary efforts involving designers, illustrators, 3D animators, and electrical engineers to deliver innovative products and experiences leveraging technology.

**Project Scope:** Directed the development of custom interactive installations for events, exhibitions, and retail, alongside mobile apps, games, and online campaigns, catering to clients across financial services, FMCG, and automotive industries.

**Key Project Highlight:** Spearheaded the creation of a groundbreaking "Virtual Car Dealership" digital showroom installation, integrating an interactive table display utilising computer vision, a mobile app, WebGL graphics, and seamless integration with the client's backend CRM system.

### Technical Expertise:

- **Frontend Development:** Utilised AngularJS for frontend development alongside openFrameworks (C++) and D3.js for data visualisation.
- **Game Development:** Employed Unity for game development, with additional support for BlackBerry through a pure-Java version of a game.
- **Backend Infrastructure:** Leveraged NodeJS extensively, embraced serverless infrastructure using Heroku (now part of Salesforce), and containerization for backend infrastructure, often integrating MongoDB and WebSockets for real-time data requirements.
- **Cloud Services:** Managed large-scale media handling, particularly video, utilising AWS S3 cloud storage.

## Manager: Strategic Support Services, Scatterlings Conference & Events

10/2011 - 03/2012 (Johannesburg, SA)

A wide range of responsibilities, including creative conceptualisation and graphic/digital design for various events, and lead web developer managing a team of two other developers. Clients were primarily in the pharmaceutical and life sciences industries.

## Video Editing, Motion Graphics, Interactive Media: Mann Made Media

07/2006 – 09/2011 (Johannesburg, SA)

Editing videos, mostly corporate, but also documentaries, commercials, live-captured events, etc. Also responsible for high-level IT and workflow management strategy within our post production facility. Designing and producing motion graphics using After Effects and Apple Motion.

In this period I developed the role of Interaction Designer/Developer, creating a distinct line of business within the company designing and developing custom-built interactive digital installations for events. A lot of this work was created in Java using the Processing framework.

## Freelance Video Editor

04/2006 – 07/2006 (Johannesburg, SA)

Editing videos for clients ranging from commercials to corporate media production companies.

## Online Editor, Pandamonium Productions

12/2005 – 03/2006 (Johannesburg, SA)

I was the sole offline/online editor for the entire first series of “The Most Amazing Show”, a comedy show combining studio elements with short montages and comedy sketches. This was a high-pressure environment with weekly national broadcasts.

## Freelance Media Production, Web Development

01/2005 – 12/2005 (Grahamstown, SA)

I operated as a one-man production company making videos for Rhodes University, NGO's and small businesses, as well as some inserts for broadcast in collaboration with others. For the Department of International Studies (Rhodes University), I developed and maintained a custom-built CMS using PHP and MySQL.

In the Television Journalism Department, I was a Lecturing Assistant, developing and designing course material (mostly camerawork and post-production training). I also spent a lot of time doing technical support for the Department's editing facilities.

## Formal Education

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**University:** Rhodes University, 2001-2004: Bachelor of Journalism (B.Journ) specialising in Television; a 4 year degree. I also majored in English Literature and completed two years of Computer Science. I also took Economics, Mathematics and Sociology. I excelled in all subjects and graduated *cum laude*.

**Other qualifications:** Certificate in Management Practice (Rhodes University). Certified Avid Editor. For my own interest, I also completed a Philosophy course at Nelson Mandela Metropolitan University. I have a certification for “Green Software for Practitioners” from the Linux Foundation.

## Other Interests

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Sustainability, music composition & production, road cycling, woodwork