



# David Joffe

BSc Computer Science  
Principal Software Engineer

## CONTACT

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### Location

Cape Town, South Africa

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[joffe-50771b4/](#)

GitHub [github.com/davidjoffe](https://github.com/davidjoffe)

[Djoffe.com](#)

Co-founder: [TshwaneDJe.com](#)

## TECHNICAL SKILLS

### Programming Languages

C/C++, Python, PHP, Lua, JavaScript (JS), C#, Pascal

**GPU Programming, CUDA (NVIDIA)**, nvcc, PTX, SASS, sm\_89, kernel programming, particle systems, molecular simulation (Lennard Jones), GPU computing

**SDK Development**; engine development

**Simulators**: Training Simulators; Flight simulators; Missile simulators; High-Voltage Yard/Line Simulators; Mining Simulators

**Networking & IPC**: TCP/IP, sockets; UDP, **Network programming**, PocoNet, REST APIs, RESTful, COM

**Backend & Cloud**: API development, microservices, nginx, Apache, AWS, distributed systems; Node.js, .NET, Docker, Kubernetes (K8s), minikube, Kustomize, Azure, aws-cli, GCP

**Cross-Platform Development**: Windows, Linux, macOS, WSL/WSL2. SDL; wxWidgets, CMake; Unix Mobile: adb (Android debug tool)

**3D & Graphics**: Unreal Engine, OpenGL, DirectX, SDL. Virtual Reality (VR); 3ds Max, glfw, imgui

**Databases**: SQL, PostgreSQL, MySQL, phpMyAdmin, ODBC

**AI**: LLM integration; OpenAI integration, ollama and LM studio integration, Generative AI

**Version Control & Tooling**: git, GitHub, Visual Studio, VS Code,

**SUMMARY:** Experienced programmer with 30 years in software development, designing & building complex, networked, cross-platform C++ applications (integrated web/API servers, real-time 3D graphics simulators, GPU and CUDA programming, multi-user editing & publishing, AI LLM integration, API development, localization), Docker, Kubernetes, cloud. **Co-founder** of TshwaneDJe Software. Open to remote opportunities internationally with tech companies like Amazon, Microsoft, NVIDIA, AMD, Intel and Apple.

## PRIMARY SKILLS/EXPERIENCE

**C/C++, PHP, Python, Lua, JavaScript, C#, HTML/CSS. CUDA; GPU programming.** 3D Graphics (DirectX, OpenGL, Unreal Engine); Virtual Reality. Cross-platform application development. **Networking** (TCP/IP sockets; **API development**; server development). **AI integration**. **Localization**. Web development.

*Hard-working; can adapt quickly to new languages, technologies & projects.*

## Professional Experience

(2025) Built a **CUDA-accelerated molecular simulation** (Lennard-Jones + Verlet), scaling to ~100k particles on laptop GPUs, with cross-platform support, headless batch execution, container-based deployment (Docker/Kubernetes); designed as foundations for future computational biology and longevity-related work. GitHub.com/davidjoffe/dj-cuda-samples/ source available

### PRINCIPAL SOFTWARE ENGINEER & CO-FOUNDER

TshwaneDJe Software *(Apr 2004 – Present)*

**IMPACT**: Software foundations of dictionary production in South Africa (and internationally), including whole new range of bilingual education dictionaries co-developed in partnership with Oxford University Press, in use by & help millions of learners daily

- **Principal Software Engineer**: Created **TLex Suite** (mainly **C++**), lexicography software applications in use by publishers like Oxford University Press. Consists of multiple **cross-platform applications** (TLex lexicography software, tlTerm terminology software, concordance software); multi-user XML editing, relational database support, integrated **Web/API server**, scalability, many import/export formats (csv, tbx, tmx, xliff, html, rtf, xslt). >400,000 lines of code. Multi-threaded. I used libcurl to implement **AI integration** (OpenAI API, ollama, LM studio). **Integrated Lua scripting**. IPC (Inter-Process Communication). PHP-based Web Publishing platform. **Word/Excel integration**. (Used by Pearson, Malaysian Institute of Languages & Literature, more.) **Sample code on request: C++, PHP, Lua, ...**
  - Designed & implemented built-in **tri-function integrated server** (web server, API server, & IPC server for inter-application communication, e.g. TLex/tlCorpus "linked mode") using PocoNet
  - Developed many websites for clients, including dictionary & terminology platforms
- IMPACT**: Online dictionaries help education & economic upliftment for many users, such as AfricanLanguages.com/Swahili/

## SENIOR DEVELOPER

5DT (Fifth Dimension Technologies) *(Dec 1995 – Apr 2004)*

**VR (Virtual Reality)** (DirectX, OpenGL, TCP/IP networking, sockets, etc.)

**IMPACT**: Mining Training Simulators I developed are used by miners in South Africa and internationally, helping broadly improve productivity of mining which underpins much economic activity and development.

**IMPACT**: Flight Simulator Visualization System helps underpin training of air

gcc/clang, subversion

**Other:** Localization (tbx, tmx, xliff, po; gettext); **Web development;** HTML/CSS, high-performance computing, x86 assembly 16-bit, **Adobe Photoshop**, COM automation (Word/Excel automation), Lua integration, libcurl , XML, JSON, VirtualBox.

**Game development**

**Application development**

**Software Training, Project management**

Full [online resume](#)

**Languages:** English (1<sup>st</sup> language),

Afrikaans, basic Hebrew

Updated 20 Dec 2025

### force pilots.

- C++ Developed 3D VR (Virtual Reality) **flight simulator** systems (integrated at flight training center in Langebaan for SA air force)
- C++ Developed 3D Virtual Reality mining training simulators; high-voltage training simulators. [5dt.com/mining-simulators/](http://5dt.com/mining-simulators/)
- C++ Co-developer of 3D VR driving training simulator
- C++ (Lead Developer) Managed development of 5DT SDK (Software Development Kit) (3D graphics OpenGL/D3D, sound, networking & framework). Lead developer of networking library.
- C++ 3D Unmanned Aerial Vehicle (UAV) simulator (for Kentron)
- C++ (Lead Software Engineer) Created 3D Virtual Reality guided missile training simulator ("VR Polyphem" for EADS Europe) with virtual environment (using real-world terrain & satellite data), virtual missile & controls, infrared, networking

### Key Projects

- **Dave GnuKem (Open Source)** Led development of cross-platform Retro 2D Game that is now included in **official Debian** Linux. [GitHub source repo](#) (C++)
- **EC Department of Education (2024)**: Led development of multilingual terminology server, software for editing & publishing the terminology, & built Apps/website for learners to access the terminology. Also [presented the software training](#).  
**IMPACT: Help education and multilingual access to education resources for millions of learners**

### Education

BSc Computer Science- University of Pretoria - 1998