Šimon Potočňák   [GitHub](#)

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EXPERIENCE

Virtual anatomy   **Sep.2024 – Feb.2025**

3rd year internship, JRCZ Zeeland

- The main goal was to develop an interactive 3D application in Unreal Engine and C++ to help nursing students learn human anatomy beyond 2D diagrams, which lack perspective and freedom.
- I designed, implemented, documented and optimized an application containing a realistic human anatomy model based on MRI data, originally unsuitable for real-time rendering. Various unique optimization techniques were applied to achieve a ~12 ms frame time, ensuring a smooth learning experience.
- Major features include an elaborate simulation system for physiological shocks, blood flow visualization accompanying the simulations, an animation system, an information display for selected body parts containing Latin, English, and Dutch names and lastly a side menu with tree hierarchy of the entire anatomy in order to allow users hide and show various body parts at will.

Vulkan-RTX   **Sep.2024 – current**

Personal project

- I am actively developing a free and open-source 3D rendering engine and scene editor from scratch using C++, the Vulkan API, and the Slang shading language.
- The renderer supports both rasterization and real-time interactive Monte Carlo path tracing using the latest RTX hardware.
- Notable features include volumetric heterogeneous participating media rendering, ray-traced shadow mapping, image-based lighting, multi-threaded model loading, and a scene editor with gizmos for an intuitive 3D world building experience.
- Rendering engine was presented during global 2025 Siggraph conference in Canada to share my experience with Slang shading language

Hangout Safari   **Oct. 2023 – Feb. 2024**

HZ University of Applied Science

Full-stack web application that helps students cope with social anxiety

- Motivation factor is incorporated in the interactive **3D Safari world** where users can collect animals as rewards for attending social events.
- Application is build using microservice architecture

EDUCATION

HZ University of Applied sciences   **Jun, 2027**

BCs. , Software Engineering, Minor: Nuclear technology
Middelburg, NL

SKILLS & PART - TIME JOBS

- **Skills:** Vulkan, GLSL, Slang, JavaScript, TypeScript, PHP, Java, C#, C++, Linux, Tailwind, OOP, Svelte Kit, NodeJS, Laravel, three.js, OpenGL, Docker, Git, DevOps, Figma, Python, Data Science, Agile, UX/UI design,
- **Part-time jobs:** Delivery driver (Domino's, LTD) - *current*
- **Others:** I am an active member of Vulkan rendering API and Slang shading language communities and I try to contribute to either of their open standards. I also host small website that list open source project that are using Slang shading language to help people with finding resources