Dion Osmani

Education

HES-SO, School of Engineering — Sion, VS
BSc Computer Science and Communication Systems, Data Engineering — *August 2022 – Sept. 2025*

Technical and Vocational School — Sion, VS
Federal VET Diploma in IT, Systems and Networks, view certificate — *Aug. 2018 – June 2022*
Technical Matura, view certificate — ”

Experience

HES-SO, Infrastructure Competency Center — August 2021 – July 2022
Intern, view certificate — *Sion/Sierre, VS*

- Designed and developed an automatic naming and categorization system for virtual machines in a vSphere environment.
- Developed a progressive web application to facilitate the creation of virtual machines by business users, thereby reducing the workload of system administrators.

Extracurricular Activities

Career Promotion — August 2022 –
Facilitator — *VS*

- Presented educational opportunities that provide access to university-level education, explaining possible career paths to young people.
- Raised awareness among students about artificial intelligence, presenting the current state of the field and its practical applications.
- Promoted the program to young audiences by managing information booths and engaging in discussions about careers in the sector.

HES-SO Valais/Wallis Communications — August 2024 – Sept. 2025
Ambassador — *VS*

- Created visual and video content for Instagram and TikTok related to student life and campus activities.

Projects

Adaptive Mesh Refinement — github.com/dij0s/AMR
Academic Project

- Developed an Adaptive Mesh Refinement (AMR) algorithm in Python, optimizing computational resources with a $\sim 95\%$ reduction in execution time.
- Implemented an efficient Quadtree/Octree data structure for numerical simulation, with a $\sim 92\%$ reduction in memory usage.
- Solved heat diffusion equations using a second-order finite difference scheme, validated by comparison with a reference solution.
- Applied professional development practices including extensive unit testing, continuous integration (GitHub Actions), and detailed technical documentation.

Autopilot Driver Genetic Algorithm — github.com/dij0s/AdGA
Academic Project

- Designed and implemented a distributed framework for trajectory optimization for autopilot using genetic algorithms.
- Developed a massive parallelization system on supercomputer via SLURM, allowing simultaneous optimization of multiple trajectories.
- Developed a trajectory evaluation heuristic based on optimal driving principles.
- Established a scalable architecture enabling computation scaling on calculation clusters using Kubernetes.
- Implemented genetic algorithms for multi-objective optimization of autonomous driving trajectories.

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