Bendik Arbogast

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Education

09/2013 - 07/2019 **Gymnasium in der Taus, Backnang**

09/2019 - 07/2022 **Gewerbliche Schule Backnang**

- Technisches Gymnasium with focus on Computer Science
- Abitur (Germany): GPA 1,4 with 764 / 900 credits

08/2022 - Present **ETH Zürich - BSc Computer Science**

Certificates

10/2021 **CS50x Introduction to ComputerScience**
HarvardX/EdX. Online

06/2019 **DELF certificate B1**
Institut français d'Allemagne

Experience

12/2023 - Present **Self-employed**
Designed and developed an automation solution for a larger Zurich-based business in construction. (details disclosed due to NDA)

Expertise

Web Development

- Designed and developed a web-based custom automation solution for a client.
- Started web development as a hobby over 6 years ago.
- Highly proficient in javascript/typescript and several common frameworks: express, next, react, fastapi, etc.

Machine Learning

- Multiple private and university projects using numpy, pandas and torch.
- Implemented GPU accelerated MLPs using WebGL and WebGPU.
- Passed "Introduction to Machine Learning" course at ETH with 5.0.

Computer Graphics

- Wrote multiple small projects using WebGL2 starting in 2020.
- Added WebGPU implementation of FlexLight.
- Developed a WebGPU powered architecture planer as a final project for the "Fundamentals of Web Engineering" course.

Linux

- Using Linux as my primary Operating System for over 7 years.
- Managed multiple Linux-VPS instances and websites.
- Docker
- Setting up and maintaining Nginx, NodeJS, MySQL, Dovecot and Postfix installations.

Portfolio

FlexLight Engine (GitHub | Demo)

FlexLight is a web-based fully modular render engine, that supports real time Monte-Carlo Pathtracing (using BVHs and importance sampling). The engine features a built-in Denoiser and uses PBR materials and several approximations grounded in physics to achieve realistic lighting. It allows obj file imports and supports fully dynamic scenes. I built the engine originally using javascript and WebGL2 and pivoted in 2024 to WebGPU and typescript.

NeuNet (GitHub | Demo)

Neunet is a web frontend library that implements MLPs using GPU acceleration with WebGL2. It leverages WebGL2 fragment shaders to parallelize forward and backward passes for MLPs using the GPU on the browser frontend. The library supports commonly used activation functions and layer normalization.

Languages

German	Native
English	C2
French	B1

Skills

Backend	node, express, nextjs, fastapi, php
Web Design	html, css, js, ts, react
Mobile	android, java, dart, flutter
Graphics	WebGL, WebGPU, GLSL, WGSL
ML	numpy, pandas, torch
DevOps	docker, linux, bash, nginx

Additional Interests

- member of German party Bündnis 90/Die Grünen, Grüne Jugend
- volunteered to hold and organize children's church for over 3 years

Signature