

Max Beier

SOFTWARE DEVELOPER

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EXPERIENCE

OUROBOROS JETS | 2020 – 2024

Improvement and development of Microsoft Flight Simulator addon aircraft instruments/gauges in React.js and Typescript.

FRAUNHOFER INSTITUT IFAM | 2022

Development and planning of a 4-axis robot with multithreaded architecture in Python.

DETECTIVE APP | 2022 - 2024

Development and planning of the backend architecture of a geo-data based "geo-caching" app with procedural storytelling (multiple playable "stories") and virtual hotspots. Technologies used: Docker, PostgreSQL, Rust and Typescript.

More information and more projects on page 2.

SKILLS

- Javascript / Typescript
- Rust
- PostgreSQL
- REST APIs
- Svelte / SvelteKit
- HTML/CSS
- Python
- Docker
- Java
- SolidJS
- Bun
- Node.js
- React.js / React Native
- Astro
- GraphQL

EDUCATION

IGS BUXTEHUDE | 2014 – 2020

- Intermediate School Certificate

JOBELMANNSCHULE STADE | 2020-2024

- Advanced Intermediate School Certificate
- General Certificate of Education (GCE)

HUMBOLDT UNIVERSITY BERLIN | 2024-2027

- Computer Science (B.Sc.)

LANGUAGES

- German
- English

PROJECTS

OUROBOROS JETS | 2020 - 2024



At Ouroboros Jets I was involved in the development of the Embraer E-Series for the Microsoft Flight Simulator (2020). My main task was to develop the displays. For this I used Coherent GT in the Asobo Engine to access the simulator data and render the displays. I had originally created the displays in React.js before transferring them to Microsoft's newly introduced Avionics Framework in 2022. The project brings together many talented and international members who share their enthusiasm for aviation and the fun of development.

More information:
www.ouroborosjets.com

Primary Flight Display – E170
Completely functional in the simulator and
SVGs created by myself

SCIENTIFIC EXAMINATION: "DIFFUSION MODELS" AND PETER REHDER AWARD | 2023

In 2023, I wrote a scientific paper on machine learning, specifically on diffusion models and clip transformer architectures, together with two other students in the 12th grade. As project manager, I was responsible for setting up the model architecture and for the detailed description of the individual model modules in the written paper. I also took care of the visual representation of the modules in our presentation. Our work was nominated for the Peter Rehder Award and won second place. For the model architecture, we used Python, in particular PyTorch, with pre-trained modules.

More information:
<https://athenaeum-stade.de/schueler-ingenieur-akademie-stade-peter-rehder-preis-2023/>

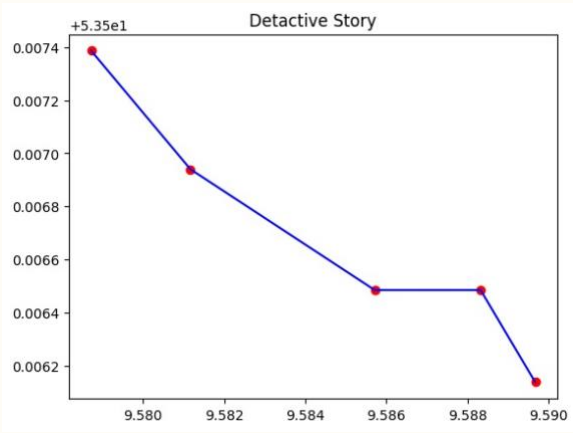
DETECTIVE APP | 2022 - 2024

I was involved in the Detective app from the very beginning and played a key role in its development. In the beginning, I was the only developer and created a prototype in Unreal Engine with C++ to demonstrate our algorithms to investors. I then developed my own map renderer in TypeScript to save resources, but soon switched to MapBox for faster prototyping and a better user experience.

In 2023, we expanded our team with a designer and a frontend developer. My tasks then shifted to database management with Postgres and developing the backend for the first demo in Rust with Axum. Using Rust and Axum allowed us to handle a high number of requests despite limited resources. Since the app was geo-based, I focused on developing the algorithms in addition to user authentication with JWTs and game handling.

At the end of 2023, we decided to rewrite the backend in TypeScript and integrate it with GraphQL to ensure type safety between the frontend and backend. A particular challenge was to develop procedurally generated routes for each "story" to keep users moving through exciting route guidance.

Code: www.github.com/detectiveapp



Coordinates of a story