

LUCAS FORSTER

Solution Architect and Web Engineer

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EXPERIENCE

Freelance 📅 Apr 20 - ongoing

Full Stack Web Developer

My clients are mainly medium-sized companies from various industries. For the development of individual web applications I select the appropriate technologies after analyzing requirements. All development steps are implemented in close coordination with the client as well as involved internal and external developers. This ensures milestones are met and deployments are provided on schedule.

Fraunhofer FIT 📅 Dec 17 - Apr 21

Student Research Assistant

Parallel to my studies, I started my career in the expert group for Intelligent Mobility. The chair develops information systems for transport associations and companies. My responsibilities consisted of the development of various frontend modules. Weekly meetings were held to coordinate the project development. The expert group for Cooperation Systems approached me with a new concept. They assigned me the responsibility for the development of a desktop client (see projects).

PROJECTS

Organization Platform for Event Broadcasts

Freelance

A globally active service provider for satellite and IP video transmissions wanted a web application to cover the organizational aspects associated with its broadcasting. For the transfer rights, it needed a secure access management with good handling. As a further requirement, the communication lining up to an event should be streamlined. For the platform I took an event sourcing approach and used WebSockets.

Event Sourcing

TypeScript

React

Material UI

Node.js

CERTIFICATIONS

ITIL V4 📅 upcoming

Foundation

Best practices for ITSM

BMC ARS (Remedy) 📅 Jun 23

Certified Associate

ITSM tool

EDUCATION

Computer Science B. Sc. 📅 Sep 21

RWTH Aachen University

Overall mark 2.6

Bachelor thesis on a topic from the field of *Intelligent Mobility*:

Disaggregating Origin-Destination Matrices using Time-Progressive Graphs for Agent-Based Traffic Simulations

Published abridged version:

doi.org/10.1016/j.procs.2022.03.072

Application subject: Physics

Elective courses: Efficient Algorithms, Artificial Intelligence, Automata Theory, Technical English

Abitur

📅 Jun 15

Max-Planck Gymnasium Saarlouis

Overall mark 2.1

CS as a main subject and working group on AI

Final exams in mathematics, CS, French, German, and history

French Primary School

Institut de la Providence

Management of IoT-enabled Professional Devices

Freelance

A leading global supplier of medical devices requires the permanent ongoing development of its website, including a customer service area. The devices distributed are constantly transmitting data which is collected in the cloud. These are displayed in the service area for analytical and problem solving aspects. Furthermore, various support functions such as a ticket system are implemented.

Blockchain for Education

Fraunhofer FIT Cooperation Systems

This concept proposes a new file format for educational certificates. Their validity can be checked by a central server using blockchain. I contributed a desktop client to view, check and manage the certificates. The included HTML code had to be made resizable inside an iframe sandbox. Upon validation, a generated QR Code had to be injected into the certificate display.

Open Mobility Platform

Fraunhofer FIT Intelligent Mobility

The platform is used for the development, validation and documentation of protocols. The application goal was to merge the interfaces of different public transport providers. The documentation is bound to elements to achieve synchronicity with the schema. The use of the Yjs library enabled conflict-free live collaborations. My tasks were in frontend development including state management.

Disaggregating Origin-Destination Matrices

Bachelor Thesis

LANGUAGES



German
First language



English
Fluent, daily



French – DALF C1 (2014)
Grew up bilingual

ADDITIONAL SKILLS



Git

Daily usage, including hosted features such as issues and pull requests.



CI and CD

Continuous integration by running builds and tests, e.g. using GitHub workflows. Deployment typically using provider integrations such as from Netlify or Heroku.



LATEX Typesetting System

Countless documents (since schooldays), among them this CV:

 github.com/LucasForster/cv

I applied the algorithm from my bachelor thesis to a data set from Aachen. The search space was an undirected graph with around 170.000 nodes. Java was initially chosen to match the traffic simulation MATSim. To cope with various issues, I rewrote the project in Rust.

Rust MATSim Java Multithreading
PostgreSQL

 github.com/LucasForster/day-plans

Board Game AI

Bachelor Course

The objective was to develop an AI that plays a highly modified version of Reversi. Over the course of a full semester, we competed in teams of four developers. I took care of performance optimizations as well as team organization and the repository.

Java Competitive Programming Heuristic

Microcontroller Operating System

Bachelor Course

In a team of two, we developed an operating system on a microcontroller from scratch. It manages both dynamic as well as external memory. In the I/O area, we have implemented analog-digital converters as well as RFID communication.

C Atmel Studio