

Timo Volkmann </>

SOFTWARE ENGINEER

🏠 Stuttgart 📞 +49 (0) 172 4313908 ✉ hire@timovolkmann.de </> git.timovolkmann.de 💬 moximoti 🔗 moximoti 🌐 German, English

KEYWORDS

GOLANG QT/QML AZURE JAVA IPC THRIFT VUE PROTOBUF WEBSOCKETS JAVASCRIPT DOCKER OAUTH 2.0 / OPENID CONNECT OWASP PHP LARAVEL MYSQL
NEXT.JS DRONE.IO MONGODB GRAPHQL CLOUDFLARE TERRAFORM C#/.NET OPENAPI OPENSIFT PYTHON ANGULAR NODE.JS MARIADB TCP HTML GPS
C/C++ PLATFORMIO ESP32 MQTT METEOR.JS SPRING BOOT QUASAR
NODE.JS REST BASH TYPESCRIPT VUE.JS REACT NEXT.JS HTML5 CSS SCSS POSTGRESQL BADGER VAGRANT GIT CI/CD GITHUB ACTIONS TRAEFIK
NGINX KEYCLOAK WIREGUARD LINUX MINIO ORACLE CLOUD SCRUM KANBAN UML BPMN IAM DESIGN THINKING ASTRO.JS RUST SOFTWARE ARCHITECTURE
TAILWIND

PROJECT EXPERIENCE

InCar Entertainment System Application

Mercedes-Benz Tech Innovation GmbH

Remote / Stuttgart
July 2022 – July 2023

GOLANG QT/QML AZURE JAVA IPC THRIFT

Central task in this project was to build an application which runs as an “InCar App” on the Head Unit of the vehicle. The core was written in Golang and had to process and analyze realtime data from the vehicle and notify the driver about certain events.

- Design and implement event-based Golang core application
- Derive usage data with real-time event heuristics
- Create user interface in QML
- Integrate vehicle components via DLT, CAN, Thrift and IPC
- Refactor entire architecture to simplify the system
- Mentoring for two junior developers
- Refactorings in cloud component (Java, Azure)
- Aggregate, analyze and process log and event streams
- Collaborate on developer tooling to easily access vehicle signals
- Technical team lead
- MVP for application content management

Embedded Realtime Web-Frontend

Swarco Traffic Systems GmbH

Remote / Stuttgart
February 2022 – August 2023

VUE PROTOBUF WEBSOCKETS JAVASCRIPT

Developed and implemented a web-based user interface for an embedded device with Vue 3.

- Implementation of a custom protocol on top of websockets and protobuf to enable pub/sub and request/response semantics
- Designed UI/UX based on a loose design guide
- Implementation of technical UI components to configure device

Open-Source Progressive Web Application

PhotoPrism | github.com/photoprism/photoprism

Remote / Stuttgart

July 2021 – January 2022

GOLANG VUE DOCKER OAUTH 2.0 / OPENID CONNECT OWASP

Designed and implemented a PoC for OpenID Connect integration and assessed security details of current implementation in PhotoPrism in close cooperation with the maintainers in the context of my final thesis at Heilbronn University of Applied Sciences.

- Implemented a minimum of viable functionality to enable PhotoPrism to be used by multiple users
- Implemented conditional rendering in frontend (Vue.js) for user roles/permissions, using PhotoPrisms role-based access control system
- Evaluated several OpenID Connect libraries
- Assessed security of current implementation (mainly API and session handling) according to OWASP ASVS
- Automated unit and integration testing

Consulting and Full-Stack Development

Style-Boss Schmuck

Remote / Stuttgart

September 2021 - today

PHP LARAVEL VUE MYSQL

Extension and maintenance of a custom made CRM/ERP for commission based sales processes, integrated with Shopware 5. Continuous improvement of software, integrations and processes as long-term consulting partner.

- Implemented new team-based commission system and improved database layout (PHP, Vue.js, MySQL)
- Fixed several bugs from past maintainers (PHP, Vue.js, MySQL)
- Continuously improving processes on daily usage experience and support in close cooperation with client

Consulting and Full-Stack Development

Das Quartier | dasquartier.org

Überlingen / Remote

September 2020 – today

NEXT.JS DOCKER DRONE.IO MONGODB GRAPHQL CLOUDFLARE TERRAFORM

Concept, implementation and hosting of an integrated website with Squidex (headless CMS), next.js frontend and OneDrive integration for a german holiday apartment agency.

- Headless CMS (Squidex with MongoDB) for administration and API (GraphQL, REST)
- Implemented frontend with next.js and React
- OneDrive integration for apartment images with image resizing proxy and Cloudflare CDN caching for fast page loading
- CI/CD pipeline with Gitea and Drone.io, staging and production environments
- E-Mail Scraping / Spam Bot Mitigation Strategy
- Hosting and infrastructure management
- Fully automated infrastructure and application deployments
- Architecture illustration: <https://app.box.com/s/iwcjqcwy36v8sy8f105upev9f5adeiv2>
- Support and improvements to date

DevOps / Full-Stack (Internship)

Bosch Engineering GmbH

Abstatt, Germany

September 2020 – February 2021

GOLANG C#/.NET OPENAPI OPENSIFT DOCKER PYTHON

- Bitbucket Migration: Scripts with Python, collecting information from repository owners about project state and analyzing inter-repo dependencies to clean up data before migrating
- Tool Catalog: Maintained xml-based RestAPI on internal tool aggregation platform and outlined a draft for an simplified Swagger-API (C#, .NET)
- Tool Catalog: Managed tasks and supervised developer team in india
- Evaluating OpenShift for internal applications, replacing docker-compose
- Evaluating Go for internal application development, including POC web-toolbox with Hexagonal Architecture (Go)

Travopti – travel optimizer application

Heilbronn University of Applied Sciences

Heilbronn, Germany

February 2020 – August 2020

ANGULAR NODE.JS MARIADB

Proof-of-Concept web application, optimized for mobile, to search and filter travel destinations according to personal preferences (weather, landscape profile, cultural parameters, cost of living and housing).

- Campus Cup: Simulated interdisciplinary start-up pitch with business and tech part (6 team members, 3 developers)
- Used design thinking to develop product idea
- POC with express.js, Angular and MariaDB
- Data aggregation from different sources
- Source code: <https://git.timovolkmann.de/tvolkmann/travopti>
- Mobile UI samples: <https://app.box.com/s/3pmc8fphhnex51bdfa256b76gwctbps8>

gyrogpsc – realtime GPS dashboard

Heilbronn University of Applied Sciences

Heilbronn, Germany

October 2020 – February 2021

GOLANG TCP HTML JAVASCRIPT WEBSOCKETS GPS

Realtime location data streaming application with pragmatic dashboard for live comparison and recording of GPS data with Ublox NEO-M8U as reference datasource (via serial interface). Second source (i.e. phone) can be fed into program via TCP (WiFi).

- Go backend with stream-based data processing
- Serial and plain TCP interface to feed data into processing pipeline
- Web-based UI made with plain HTML and JS
- Leveraged WebSockets for realtime push updates from server, capable of client multiplexing
- Record and Replay functionality via embedded persistent K/V-Store
- Implemented relevant UBLOX binary protocol parser in Go
- Source code: <https://git.timovolkmann.de/tvolkmann/gyrogpsc>
- Web UI samples: <https://app.box.com/s/wdqca127ssaph49t7lx1yuhcxl79llig>

Smart Garden – automated home gardening

Heilbronn University of Applied Sciences

Heilbronn, Germany

April 2020 – August 2020

C/C++ PLATFORMIO ESP32 MQTT METEOR.JS

Home gardening system with ESP32 microcontroller, using sensors to track different plant environment parameter and automatic irrigation and light control, including backend and web-based dashboard.

- Designed software architecture, choosed technologies and managed team
- Data aggregation via WiFi, MQTT and MongoDB
- Meteor.js based web application for displaying data. Capable of handling and configuring multiple appliances via WiFi and captive portal
- Sensors for moisture, temperature, light and humidity, actors for irrigation and light
- Programmed ESP32 sensor/actor logic with FreeRTOS and C using Platform.io
- Source code server: https://git.timovolkmann.de/tvolkmann/smart_garden_server
- Source code ESP32: https://git.timovolkmann.de/tvolkmann/smart_garden
- Architecture and UI sample: <https://app.box.com/s/zvmcts6u52qr0xt43enxd2edyvuvildj>

BUGA'19 Geocaching web application

Heilbronn University of Applied Sciences

Heilbronn, Germany

March 2019 – August 2019

JAVA SPRING BOOT MARIADB VUE QUASAR

Team cooperation project with Heilbronn University of Applied Sciences and Bundesgartenschau Heilbronn (BUGA 2019). Web application to discover areas and points of interest while playing geocaching.

- Backend: Java, SpringBoot, MariaDB
- Frontend: Vue.js, Vuex, Quasar
- Integration of OpenStreetMaps, API-based QR-code generation and browser-based QR-code scanning
- Team of six developers, organized via Scrum (JIRA, Bitbucket)
- Source code: https://git.timovolkmann.de/tvolkmann/labswp_2019_sose_geocaching
- Images: <https://app.box.com/s/a34hybq763i2ueoyzyfufaqq8n8x2u09>

EDUCATION

B.Sc. in Software Engineering (Systems Engineering)

Heilbronn University of Applied Sciences

Heilbronn, Germany

September 2017 - March 2022

Training media designer / advanced technical college entrance qualification

Eder GmbH / Johannes-Gutenberg-Schule Stuttgart

Stuttgart, Germany

September 2011 - July 2014

Media services (Layout, image retouching, photography for print and digital)

Self-Employed

Heilbronn, Germany
January 2014 - December 2020

Creation of business and advertising materials, image retouching, design and creation of web presences.

Internship structural building physics

EGS-plan GmbH

Stuttgart, Germany
March 2017 - June 2017

Sound insulation, room acoustics, thermal insulation, measurements.

2D Artist (digital/print media design)

eder GmbH

Stuttgart / Munich, Germany
September 2011 - July 2016

Creation, final artwork and adaptation of artwork, creative retouching and post production.