Dennis Kasper

Software Engineer

📍 Munich, Germany
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🧑‍💼 About Me

Software Engineer with a strong focus on web technologies and a solid foundation in computational mechanics. Extensive experience in full stack development, cloud computing, and DevOps, coupled with a strong background in structural, thermal, and fluid mechanics. Passionate about leveraging modern frameworks and tools to build innovative web applications and solutions, while applying engineering principles to optimize performance and drive technological advancements.

💻 Work Experience

Full Stack Web Developer/DevOps Engineer — FEV EVA GmbH

Jan. 2021 – Present — Hybrid, Munich

- **Cloud Computing & DevOps:**
  Proficient in AWS services including EC2, S3, RDS, Lambda, and Fargate.
  Experience with Terraform for Infrastructure as Code (IaC) to manage cloud resources.
  Familiarity with CI/CD pipelines and tools like GitHub Actions for automated deployments.
  Knowledge of containerization using Docker for scalable application deployment.
- **Frontend Development:**
  Developed user interfaces with modern frontend frameworks and libraries like React and Angular.
- **Backend Development:**
  Experienced with Node.js and Express.js for building robust RESTful APIs. Proficient in Python for backend development, including experience with frameworks like Flask and FastAPI.
- **Database Management:**
  Proficient in SQL and PostgreSQL, including database design and optimization. Understanding of data modeling and normalization. Familiarity with database migration tools and ORM like Drizzle.

CFD/FEM Simulation Engineer — FEV EVA GmbH

Nov. 2016 – Dec. 2020 · 4 Years 2 Months — On-site, Munich

- **FEM and CFD for Lithium-Ion Batteries:**
  Conducted thermal-electro-chemical simulations using FEM and CFD for lithium-ion battery design in Battery Electric Vehicles (BEV) and Plug-in Hybrid Electric Vehicles (PHEV).
  Utilized FEM for thermal analysis and CFD (MSDM) for electro-chemical modeling to optimize battery

performance and thermal management.
Employed MATLAB, Python, and VBA for pre- and post-processing of simulation data, including visualization and analysis.
Leveraged Model Order Reduction (MOR) techniques in ANSYS for the analysis of complex battery systems, enhancing computational efficiency and accuracy.

- **CAN Bus Communication and System Integration:**
  Utilized the `python-can` library to implement CAN Bus communication protocols with Raspberry Pi and PiCan FD, enabling data acquisition, specifically for reading out the error memory from high-voltage storage.
  Implemented a user interface (UI) with React to communicate with the Raspberry Pi, providing an intuitive and user-friendly interaction experience.

Research Assistant — ILEK, University of Stuttgart

Oct. 2011 – Sept. 2013 · 2 Years

- Conducted research in lightweight construction.
- Contributed to projects on simulation and model reduction.

🎓 Education

M.Sc. Computational Mechanics — Technical University of Munich

- *2013 – 2016*
  Thesis: Discrete Adjoint Approach to the Spalart-Allmaras Turbulence Model (OpenFOAM)
  📦 GitHub Repository

M.Eng. Civil Engineering — Hochschule Biberach

- *2009 – 2011*
  Thesis: Fluid Flow Simulations in Paint Drying Ovens (P+Z Engineering GmbH)

🛠 Skills

- Languages: Python, JavaScript, TypeScript, SQL, MATLAB, VBA
- Frameworks & Tools: React, Angular, Node.js, Express, FastAPI, Flask, Docker, Terraform
- DevOps: AWS (EC2, S3, RDS, Lambda, Fargate), GitHub Actions, CI/CD, Linux
- Databases: PostgreSQL, SQL, ORM (Drizzle)
- Simulation: FEM, CFD, ANSYS, OpenFOAM
- Embedded Systems & IoT: Raspberry Pi, CAN-Bus

📜 Certifications

- Deep Learning Specialization — Coursera, July 2020
- TensorFlow in Practice — Coursera, June 2020

🏆 Awards

- BDB-Buchpreis — For outstanding academic achievements, 2011 *(Bund Deutscher Baumeister Architekten und Ingenieure BW e.V.)*

🌐 Languages

- German – Native
- English – Proficient / Business Fluent