HAGEN HAEUSSLER

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EDUCATION

University of California, Berkeley – Specialization Year — August 2025 – Present

- CS 188: Introduction to Artificial Intelligence, EECS 126: Probability and Random Processes, EECS 149: Embedded and Cyber-Physical Systems
- Fully funded (Tuition Fees and Living Costs) by a merit-based Scholarship from the German academic scholarship foundation

Technical University of Munich (TUM) – B.Sc. Engineering Science — September 2023 – Present

- Scholarships: Studienstiftung des deutschen Volkes (top 0.5% of German students) & Deutschlandstipendium (merit-based national scholarship)
- Linear Algebra, Single Variable Calculus, Multivariable Calculus, Ordinary Differential Equations, Partial Differential Equations, Tensor Calculus, Experimental Physics, Inorganic & Organic Chemistry, Mechanics, Fluid Dynamics, Thermodynamics, Heat Transfer, Control Theory, Electromagnetism
- Computer Architecture, Circuit Design, Semiconductors, Material Science, Bioengineering, World of Engineering Lecture Series, Computer Aided Design, UML, Data Structure, Data Bases, Search Algorithms, SQL, C, Java, Development of Entrepreneurial Business Ideas Seminar

Parker School, Hawaii – High School Exchange Year — October 2020 – June 2021

- GPA 4.0 | AP Physics, Computer Science, 3D Design, Honors Math
- Awards: Head's List for "Outstanding Academic Performance", Certificate of Athletic Achievement (Volleyball Varsity Team) & Excellence in Conditioning

Georg-Cantor-Gymnasium – High School — September 2014 – June 2023

- Abitur 1.0 (GPA 4.0) | Focus: Mathematics and Natural Sciences
- Awards: Deutsche Physikalische Gesellschaft Membership (awarded for exceptional physics achievement), Georg-Cantor School Prize nomination (for academic excellence and leadership) & Multiple awards in state Math, Physics and Chemistry Olympiads

ENGINEERING PROJECTS

Sim-to-Real Validation Research Project – Team Research Initiative at UC Berkeley — August 2025 – Present

- Investigating the sim-to-real gap in robotics and autonomous driving through falsification-based formal verification
- Work involves both simulation experiments and real-world robot validation on lab hardware, with potential for research publication

Embedded Cyber-Physical Systems Lab – Course Project (EECS 149) at UC Berkeley — August 2025 – Present

- Designing embedded & cyber-physical systems using Lingua Franca coordination language with C for timing, concurrency, and state-machine modeling
- Implementing low-level software interfacing with sensors/actuators on Pololu 3pi+ 2040 robot (RP2040 microcontroller) and Raspberry Pi Pico
- Modules: Peripheral interfacing, interrupt handling, robot navigation, autonomous behavior development

AI Search & Learning Algorithms Series – Course Projects (CS 188) at UC Berkeley — August 2025 – Present

- Search Algorithms: Implemented DFS, BFS, UCS, A* with custom heuristics for multi-goal scenarios
- Multi-Agent Search: Developed adversarial agents using minimax, alpha-beta pruning, expectimax
- Reinforcement Learning: Implemented value iteration, Q-learning, approximate Q-learning
- Probabilistic Inference: Developed Bayes network and HMM inference algorithms with particle filtering

Hardware Engineering Projects – Independent & Academic Work

- Solar-Powered Climate Control: Designed photovoltaic-powered cooling device integrating electrical systems and thermodynamics
- Ballistic Optimization (Trebuchet): Applied physics principles and iterative testing to maximize performance
- Chemical Propulsion System: Constructed and launched potassium nitrate-glucose rocket

SolidWorks Design Project — October 2023 – February 2024

- SolidWorks part modeling, assembly creation, drawing derivation, dimensioning, tolerances, fits
- Technical drawing standards, PDM release process, team-based CAD design project

WORK EXPERIENCE

KSB SE & Co. KGaA – Industrial Mechanics Internship — October 2018 – November 2018

- Worked hands-on with stainless steel and aluminum using industrial lathes and milling machines
- Manufactured high-precision machine components and learned fundamental machining processes including cutting, drilling and turning.

SONOTEC GmbH – Internship & Shadowing Program — Mai 2019

- Build non-contact ultrasonic sensor for industrial tank quality monitoring

Porsche (Leipzig) – Servicing and Sensor Calibration — Juli 2022

- Reconfigured arc-welding monitoring systems by replacing batteries and servicing sensors to ensure accurate detection and flawless weld seams as part of project commissioned by HKS Prozesstechnik GmbH

EXTRACURRICULAR

Georg-Cantor-Gymnasium - 8x Class President, 2x School President — September 2014 – June 2023

- Founded and scaled school's first Christmas Market, launched 700+ participant gift exchange program, created school YouTube channel (Cantor News)
- implemented school-wide teacher feedback system, awarded Community Service Prize and voted 'Most Active Student in School Life'

Munich Music Association (AGVM) – Board Member — July 2024 – Present

- Manage social media reaching thousands of followers; coordinate guest hosting and community events with hundreds of guests

Additional Volunteer Work:

- Bahnhofsmission München (2025): Supported homeless individuals and people in need
- Judo Club Halle: 100+ hours supporting youth training and tournament organization (16 years)
- Hawaii Community Service: 100+ hours childcare; Community Service Award by US Department of State

Personal Interests:

- Judo Black Belt (1. Dan) – Judo-Verband Saxony-Anhalt, Central German Judo Championships U21 – 1st Place
- CANTOR.open 'Strongest Student' – 1st Place in city-wide strength competition

Skills:

- C, Python, Java, SQL, UML, Lingua Franca, Solidworks, Excel, PowerPoint, MATLAB, Canvas, Inkscape, Visual Studio Code, GitHub
- 3D printing, laser cutting, Arduino, 3pi+ 2040 Robot, zinc wire soldering, driver's license, DaVinci Resolve video editing