Matthias Trilsbach

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Languages: Python, Typescript / Javascript, SQL, Java, C, C++, Swift, HTML, CSS, Assembly, MATLAB
Packages & Technologies: TensorFlow (inc. Keras), SQLite, SwiftUI, React, Next.js, Node.js, AWS, Cloudfare R2, Prisma, zod, tRPC, Tailwind, NumPy, Pandas, PyTorch, SciPy, matplotlib, Firebase, Tableau

Further Education

MEng (Hons) Mechatronic Engineering - University of Manchester (1st Class) (2016-2020)
Python Programming - University of Michigan (98.9%) (2023)

Graphic Design for Branding - Hudson County Community College (Passed) (2022)
Digital Marketing: Strategies for Impact & Influence - Hudson County Community College (Passed) (2022)

Relevant Experience

Developer/Founder, Comprehensify (2023-Current) [www.comprehensify.com]
- Founded and developed an AI Startup which uses vectorization techniques, NLP AI models and cloud computing to let users upload and chat directly to their files.
- Took ownership of business operations including international legal compliance (such as GDPR), finance, sales, and marketing - demonstrating new skills learnt from recent courses.
- In addition to algorithms for machine learning - undertook design of relational & vector databases, API's, and cloud infrastructure using Amazon Web Services, utilising agile development to iteratively improve products.

Freelance Developer, Various (2022-2023)
- Created a suite of algorithms to track player and participant trends in valuation and performance within fantasy sports auctions - generating significant payouts in Las Vegas across the 22/23 NFL season.
- Development of iOS apps using Swift and the SwiftUI framework.

Data Engineer, 4over (2020-2022)
- Significantly improved marketing campaign effectiveness by using customer data to algorithmically extract relevant high value candidate clusters, increasing marketing engagement and customer purchase rates.
- Created live dashboard views to disseminate information to senior stakeholders within the company, creating 3 new positions within the company by highlighting business areas that required more attention.
- Improved production issues by redesigning the methodology with which 'late' orders are calculated, bringing these metrics to the forefront of operational decisions, which enhanced customer retention.
- Coordinated database migration, liaising with external contractors and internal teams, resulting in a more accessible and streamlined database.

Machine Learning Engineer (Master's Project), Bill & Melinda Gates Foundation/ADAS (2019-2020)
- Lead a team of five, constructing an AI camera system to preemptively diagnose disease within plants.
- Individually designed and integrated Machine Learning and Image Processing Software into production, exceeding both accuracy and optimisation targets - achieving an accuracy of >88% in preemptive disease diagnosis across all test cases, with 100% in ideal conditions.
- Achieved a finalist position in the Alliance Manchester Venture Further Business Start-Up competition.

Sensor Design Engineer (Undergraduate Project), Jaguar Land Rover (2018-2019)
- Created a capacitive smart sensor to detect rainfall levels through commercial windscreens, in collaboration with Jaguar Land Rover. The newly designed sensor was highly-successful, with the new lower-cost sensor solution saving over 50% on production costs.
- Synergistically balanced development between physical sensor design and embedded microcontroller code in C++, creating highly optimised algorithms designed to counteract sensor drift.

Engineering Internships, National Grid (Summers 2017-2019)
Three consecutive summer internships and awarded the Power Academy Scholarship.
- **Customer Solutions Engineer** (2019*)* - Developed a client-facing application in Python, calculating the cost of connection to tertiary transformers. This application streamlined the initial consultation stage, automating several key early-stage processes, reducing employee workload and overhead by ~5 hours per application.
- **Investment Delivery** (2018) - Created a project tracking system identifying legal and technical milestones of network infrastructure projects. This located several lost projects, recovering over £100,000 in investment.
- **Economic Analyst** (2017) - Developed a standardised methodology for calculating interconnection costs between two network nodes. This work was published in the Network Options Assessment, a legally required national publication.