Tjeerd Bakker

Electrical Engineer & Software Developer

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Interests: IOT, ML/AI, Embedded, Web

Education

University of Twente
Bachelor Electrical Engineering

2018 - now

Marnix College
Bilingual Pre-University Education (Tweetalig VWO)

2012 - 2018

Experience

Extendas BV
Fullstack Engineer and Residential Electrical Engineer

- Frontend and backend developer on a large monitoring system for devices at gas stations
- Creating a simulator for electric vehicles to test internal systems
- Creating a car-wash controller, including reverse engineering communication protocols

2020 - now

ZT-Systems Almelo
Quality Control Engineer

- Testing and repairing of newly built serverracks

2018

Skills

Programming
Frontend: EmberJS, VueJS, TailwindCSS, Typescript, HTML/CSS/JS
Python: Backend (FastAPI), AI/ML (Tensorflow), Computing (MatPlotLib), Several DB interfaces
Misc: C/C++, Flutter, MatLab, MicroPython, Bash, Linux in general, Assembly, Arduino

Tools
Software: Git, GitHub, VSCode, LTSpice, Adobe Suite, Fusion360
Network: Deployment on Google Cloud Platform, I also run a dedicated Linux server

Looking good so far? Check out the other side of this page for some of my personal projects!

Personal Projects

These are my largest projects; I have dozens of smaller (but awesome) projects that don't fit here

Home automation system (300+ hours)

Complete home automation system from scratch that runs disconnected from the internet. Includes a backend server that allows for total automation, frontend (to be displayed on a tablet) and many custom devices (switches, digital radiator valves, humidifiers, plant watering pumps, temperature and humidity sensors). Primarily written in Python, MicroPython and VueJS. Includes custom circuits for some devices. I wrote this when HomeAssist was focussed on more expensive devices and I managed to cut the costs of a completely automated home by ~80%.

Pianotes (~150 hours)

Tool to learn sightreading (play the piano by directly reading notes from sheet music). Basically a mix of Synthesia, Piano Tiles and Sheet music. Randomly generated notes would appear in the screen and need to be 'played away' by pressing the corrosponding piano keys. Includes support for both MIDI and audio (I wrote a real-time pitch detection AI). Written in Python with Pygame and Tensorflow.

Bierlijst (~80 hours)

A digital tool for student houses to keep track of how much beer everyone has so that the beer can be stored in a single fridge. I focussed on security, expandability (thousands of users should be able to use it simultaneously), and responsive web design. Written in Python with FastAPI and EmberJS.

Stock and Crypto tracker, Dashboard (~40 hours)

Actually 3 projects. 1) Loads a transaction CSV of a DeGiro User and calculates the portfolio value for every day since first purchase. 2) Uses the BitVavo API to keep track of cryptocurrency portfolio value over time. 3) A dashboard to display both portfolios as well as the time, date, and weather predictions. Written in Python and VueJS with Vuetify.

PerscoBingo (~20 hours)

bingo.icheered.nl

A website to play randomly generated bingo cards during 'Persconferenties' in Covid pandemic. At its peak it had ~1800 simultaneous players. Written in VueJS with a tiny Python backend.

Dedicated Linux Server (Running since 2019)

I refurbished an old PC to act as a personal Linux server. I use it to deploy projects (cheaper than GCP or AWS), as a VPN server, PiHole to block ads on my network, and to host game servers for some friends.