

David Pollack - Cover Letter

TLDR; ML Engineer with NLP, audio, and image/video recognition experience. Passionate about creating ml tools. Contributed to a lot of OSS projects such as PyTorch and Torchaudio. Also can do MLOps. Recently named as an author on the [official Torchaudio paper](#).

Hi, I'm David Pollack. I'm an ML Engineer passionate about solving various problems in AI. I currently work at the hatbot company Solvemate GmbH in Berlin developing our NLP services, devops, and other general backend engineering. Specifically some of the highlights are creating a custom model server microservice to do word vectorization from scratch, developing a voice interface to our chatbot using Twilio, and maintaining our entire GCP kubernetes-based (ML and non-ML services). Previously, I worked at I2x GmbH, and primarily worked on creating production-ready NLP classification solutions using state of the art tools named after various Sesame Street characters. Before that, I worked at Fellowship.ai, which is research arm of the commercial product, Plaform.ai, and there achieved state of the art results classifying different fashion styles. I also contribute to open source software projects when I can; these projects include pytorch, torchaudio, huggingface transformers, Microsoft Presido, NVIDIA NeMo, Flux.jl, and more.

At Solvemate, I am the primary developer of all of our NLP-based systems. We use a hybrid system of a legacy tree-based chatbot with an NLP component to allow for text-based input. Before coming to Solvemate, they only had a click bot with no ability whatsoever. I developed an entire microservice to do word vectorization and sentiment analysis on text inputs. I also adapted the current system's logic to work with this text input while still using the legacy tree-based logic. From the engineering side, I have done a lot of work simplifying our services as I believe that simpler code is often easier to work with and much easier to maintain. About 6 months ago our devops person left the company, so I was put in charge of maintaining our GCP kubernetes architecture. This includes developing a custom CLI program to allow other developers to easily interact with kubectl and helm without having to get into the nitty gritty aspects of either (we create per-

namespace versions of our entire product with a single CLI command for developers to work with). I also maintain other aspects of our architecture with terraform.

I am involved in the ML open source community with highlights including being the former lead author of PyTorch Audio, which is PyTorch's project for loading and manipulating audio data. I widened the scope of the PyTorch Audio project to allow for simpler data augmentation with tighter C++ integration into SoX. I have been invited to the PyTorch Developer Conference annually since 2018. I am an author on the [Torchaudio paper](#) along with the (mostly) Facebook developers of the project. I contributed to the main PyTorch library as well having originally added N-dimensional padding to the main repo. Recently, I made a large contribution to the text anonymization library Presidio by Microsoft to allow text anonymization of non-English languages. I have also contributed to the NVIDIA NeMo by allowing for special tokens in their ASR system and by making the library more friendly for non-English ASR. Despite being a native English speaker, I believe it's a language that gets too much focus especially with open source tools and datasets, and we need more people making sure ML doesn't get overfit to English.

My master's thesis explored musical genre classification of audio clips using traditional spectrogram-based, attention RNN-based and dilated convolutional-based (WaveNet style) architectures. During my studies, I worked for a fashion video app startup developing an object recognition system to identify different classes of clothing in user-generated videos and to determine the best frame to crop from the video to showcase these clothing items. I utilized a Mask R-CNN Caffe2-based system, while adding a custom blur detection module to the network. Separately, I integrated a style transfer network into the video processing pipeline. I dockerized my work product and connected everything to the AWS infrastructure.

I am proficient in linux system administration, most linux tools and especially text tools, git, cloud systems (AWS and GCE), kubernetes, and terraform.

In the summer of 2018, I received an MSc in Economics with a specialization in Quantitative Methods from Humboldt Universität. In my free time, I am learning Rust and Julia.

As for my goals, I want to find a talented group of ML engineers to solve meaningful problems in audio, NLP, or vision with access to data and resources to work with state of the art technologies.

Lastly, I am a C1-level German speaker, which is something I'm very proud of, because I did not speak a word of German before arriving in Germany in 2013. In fact, at my previous job, i2x, I even did some of the labeling myself with our German language datasets. Finally, my other hobbies include bouldering, cycling, pilates, travelling, and cooking.