

Auss Abbood

Cambridge, UK — contact@aussabbood.com — www.aussabbood.com

EDUCATION

University of Cambridge, Cambridge, UK Oct. 2024 —
PhD in Computation, Cognition and Language. Specialised in artificial intelligence, neuroinformatics and neuroscience.
With distinction

Osnabrück University, Osnabrück, Germany Oct. 2016 — May 2019
M. Sc. in Cognitive Science Grade 1.1 on a scale of 1 – excellent to 5 – bad
Specialised in artificial intelligence, neuroinformatics and neuroscience. With distinction

Goethe University Frankfurt, Frankfurt am Main, Germany Oct. 2013 — Sep. 2016
B. Sc. in Biological Sciences Grade 1.6 on a scale of 1 – excellent to 5 – bad
Specialised in neuroscience.

EXPERIENCE

Robert Koch Institute Berlin, Germany
Data Scientist and Project Lead Oct. 2018 - Sep. 2024

- Built a risk assessment pipeline for COVID-19 by combining tabular and textual data, applying self-developed risk metrics, and predicting short-term risk, saving 1 hour of manual work per day.
- Co-developed intensivregister.de (ICU surveillance). Worked on data engineering, visualisation, and on-demand data analyses to support ICU management in Germany with up to several million visits per day.
- Automated key information extraction and relevance scoring for public health surveillance to potentially save epidemiologists 30 minutes of work daily.
- Established collaborations with public and private sector partners from more than a dozen countries and with organisations such as the the African Centres for Disease Control and Prevention, The International Society for Infectious Diseases, and the World Health Organization Hub.
- Teaching experience: Gave lectures on outbreak detection. Organised a training of trainers for epidemiologists in Uzbekistan on data science in epidemiology. Supervised two student assistants and co-supervised a master's thesis.

Communintelligence Münster, Germany
Co-Founder and Data Scientist Oct. 2017 - Jan. 2019

- Data science and deep learning consulting for developers in a public utility.
- Predicted bus delays with a mean error of just two minutes by analysing multivariate bus traffic time series using random forests.

PROJECTS

Public Health Intelligence Capacity Building and Innovation Berlin, Germany
Project Link: PHI-CBI Jan. 2023 - Oct. 2024

- Leading technical work to increase the relevance of system output to users of the text-based surveillance system, Epidemic Intelligence from Open Sources (EIOS).
- Conducted user interviews and extensive data analysis to identify bottlenecks in monitoring with EIOS.
- Experimented with recommender systems, anomaly detection and classification algorithms on text data to identify the most promising approach to increase the relevance of articles displayed in EIOS. Prototyping ongoing.
- Helped acquiring €1,600,000.00 in funding. Supervising two data scientists.

Data and AI-supported early warning system to stabilise the German economy Berlin, Germany
Project Link: DAKI-FWS Dec. 2021 - Oct. 2024

- Co-leading work packages on early warning from epidemiological data such as Germany's notification system, wastewater surveillance, and self-reported symptom data.
- Implemented a forecast hub with specialised metrics to evaluate AI models for early warning on multimodal data.
- Developed a new post-hoc labelling algorithm for COVID-19 time series that can be used to evaluate AI-based early warning models.
- Helped acquiring €860,000.00 in funding for our institute. Co-supervising two data scientists.

Natural Language Processing for Event-based Surveillance with Africa CDC Berlin, Germany
Project Link: NaLaA May 2021 - Jan. 2023

- Led project on applying natural language processing to Twitter data for event-based surveillance.
- Developed a language model in Sesotho for geo-tagging of tweets.
- Worked on an interface for Africa CDC's existing event management system for the Twitter surveillance component.
- Co-organised workshop on event-based surveillance for Southern African RCC on surveillance methods.
- Acquired €590,000.00 in funding. Was project lead. Supervised one data scientist.

The Focus Group on Artificial Intelligence for Health by ITU and WHO

Project Link: FG-AI4H

Nov. 2019 - Aug. 2023

- Co-led Topic Group on Outbreaks and AI Test Specifications.
- Researched and defined best practice in the development and benchmarking of outbreak detection algorithms.
- Developed a benchmarking setup with qualitative and quantitative measures to benchmark outbreak detection algorithms.
- Collected best practices to ensure safe use of AI and benchmarking setups through testing.

PUBLICATIONS

- Bhatia S, [...], **Abbood, A.** [...] et al. (2023). Lessons from COVID-19 for rescalable data collection. *The Lancet Infectious Diseases* 23 (9).
- **Abbood, A.**, Ullrich A., Denkel, L.A. (2023). Understanding COVID-19 reporting behaviour to support political decision-making: a retrospective cross-sectional study of COVID-19 data reported to WHO. *BMJ Open*, 31 (1).
- **Abbood, A.**, Ghazzi, S. (2023). General Framework for Evaluating Outbreak Prediction, Detection, and Annotation Algorithms. *medRxiv*.
- Oala L, [...], **Abbood, A.** [...] et al. (2021). Machine Learning for Health: Algorithm Auditing & Quality Control. *Journal of Medical Systems* 45 (2021).
- **Abbood, A.**, Ullrich, A., Busche R., Ghazzi, S. (2020). EventEpi—A natural language processing framework for event-based surveillance. *PLOS Computational Biology*, 16 (11).

CONFERENCES

- 35th NeurIPS – Online (2021). Workshop.
- EPIDEMICS 8 – Online (2021). Pre-recorded presentation.
- Applied Machine Learning Days – Lausanne (2020). Poster presentation.
- European Scientific Conference on Applied Infectious Disease Epidemiology – Stockholm (2019). Presentation.
- The 14th Annual Conference of the German Society for Epidemiology – Ulm (2019). Presentation.

SKILLS

- **Relevant Coursework:** Algorithms and Data Structures, Foundations of Software Development, Scientific Programming in Python, Machine Learning (ML), Comparative ML, Advanced ML, Implementing ANNs with TensorFlow, Applied Mathematics I&II, Action & Cognition I&II, Advanced Topics in Action & Cognition
- **Programming languages:** Python R, Java, SQL, Bash
- **Software packages:** Altair, BeautifulSoup, gensim, Flair, Git, Luigi, matplotlib, NLTK, numpy, pandas, plotly, PyTorch, SciPy, Selenium, sklearn, spaCy, Statsmodels, TensorFlow
- **Languages:** German (fluent), English (fluent), Arabic (nativ)
- **Udacity Nano Degrees:** Deep Learning (2019) and Natural Language Processing (2021)

PRIZES AND SCHOLARSHIP

- CAM Doctoral Training Partnership funded by the Economic and Social Research Council for my PhD at University of Cambridge, 2024–2028
- Winner of the MOOD EU Horizon 2020 summer school hackathon with an ensemble machine learning model to predict tick prevalence in the UK using spatio-temporal earth observation, vegetation, and weather data (2023).
- Scholarship of the Rosa-Luxemburg-Foundation (2018).
- Second place in the hack4health building a Google Trends-based early warning system and a chatbot for syndromic surveillance for general practitioners (2018).
- Winner of the MÜNSTERHACK with an augmented reality-based bus station information chart and with machine learning-based bus delay predictions (2017).
- Winner of the Hasso-Plattner-Institute Hackathon with a chatbot for vaccine consultation (2017).

HOBBIES

- Co-founder of the Open Knowledge Lab Osnabrück to facilitate citizen science.
- I compose music and play bass. I played in a jazz and progressive rock band. We came 2nd in the SPH band contest with our jazz band Subito among over 1000 bands from the German-speaking countries and I was awarded best bassist (2015).
- I was a stage actor for 4 years at “theaterperipherie” in Frankfurt am Main, working on postmigrant stories with underrepresented people. During my time, we won the Frankfurt and the Hessian Integration Prize. We were awarded by “Deutschland - Land der Ideen” (“Germany - Land of Ideas”) for our innovative theatre. We won first prize at the Lucarno Theatre Festival in Switzerland.