Awais Ashfaq

Contact Information	Fågelvägen 6F, Lgh 1201 302 37 Halmstad Sweden	+46 702 556 575 awais.ashfaq@outlook.com www.awaisashfaq.com

Summary

I bring over 7 years of experience in healthcare data analyses, applying statistics, traditional machine learning (ML), deep learning and language models (LM) to extract insights for informed clinical and management decisions. I offer end-to-end hands-on ML pipeline support, from data accumulation, processing to model development, deployment and documentation for end-users. My contributions are recognized in prestigious AI, medicine, and epidemiology journals, and I am humbled by the opportunity to collaborate on real clinical projects with physicians across all care levels to improve patient outcomes.

Technical Highlights

- **Healthcare analytics**: Proficient in statistics and machine/deep learning tools including fine tuning of language models for text, signals and longitudinal EHR analyses.
- **Programming**: Python, R, Matlab. Pytorch, Tensorflow. SAS, SQL, PowerBI. Spark, Hadoop. Docker, Containerization, Kubernetes, Streamlit.

Work Experience

Region Halland, Sweden

Research Scientist, AI in health — April 2022 - Present

- Provide research and development support to identify and address problems where statistics and machine learning coupled with a broad spectrum of health and socio-economic data can facilitate decision support at patient and organization levels.

Consultant — Jan 2017 - April 2022

- Analyzed broad sets of data and crafted evidence-based guidelines for the Region. Provided actionable insights, identifying bottlenecks and cutting patient waiting times.

Team leaders: Magnus Clarin PhD, Markus Lingman MD PhD

XSilico AI, Sweden

Co-founder — Jun 2023 - Present

- Co-founded a tech startup specializing in advanced language models designed specifically for healthcare. Our focus: automating journal text annotation and summarization.

Shaarpec by Hallandia V, Sweden

Data analyst — Jan 2022 - April 2022

- Provide data science support for conducting retrospective clinical studies collaborating with pharmaceutical industries and Region Halland.

Advanced Technology Company, Kuwait

Field service engineer, Diagnostic imaging — Aug 2013 - Aug 2014

- A site based role for problem solving, installations and maintenance of molecular imaging devices.

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EDUCATION

Halmstad University, Sweden

PhD Data Science — Oct 2016 - Mar 2022

- Thesis: *Deep Evidential Doctor*
- Advisors: Slawomir Nowaczyk PhD and Markus Lingman MD PhD

KTH Royal Institute of Technology, Sweden

M.S. Medical Engineering — Sep 2014 - Sep 2016

- Thesis: *Segmentation of cone beam CT images in stereotactic radiosurgery using deep convolutional neural networks* The thesis was carried out in the Research and Physics department at Elekta Instrument in Stockholm, Sweden.
- Advisors: Jonas Adler PhD and Pawel Herman PhD

National University of Sciences and Technology, Pakistan

B.S. Electrical Engineering — Aug 2009 - July 2013

- Scope: Signal processing, Wireless communication networks, Control theory, Electrical system modelling and Project management.

RELEVANT PUBLICATIONS

Google Scholar for complete list

A. Ashfaq, M. Lingman, M. Sensoy and S. Nowaczyk "DEED: DEep Evidential Doctor" Artificial Intelligence. 2023 *Link*

A. Ashfaq, M. Lingman and S. Nowaczyk "KAFE: Knowledge And Frequency adapted Embeddings" LOD. 2021 *Link*

A. Ashfaq, S. Lönn, ... and M. Lingman. "Data Resource Profile: Regional Healthcare Information Platform in Halland, Sweden" International Journal of Epidemiology. 2020 *Link*

A. Ashfaq, A. Sant'Anna, M. Lingman and S. Nowaczyk. "Readmission prediction using deep learning on electronic health records" Journal of Biomedical Informatics. 2019 *Link*

EXTRA-CURRICULAR

- Teaching: MS Thesis supervision — 2017 - Present
- External reviewer: Scientific Reports, Journal of Biomedical Informatics, Physica Medica, International Journal of Information Technology and Decision Making, BMJ Open — 2019 - Present
- Representative of health and work environment for PhD education — 2018-19
- Academic based scholarship in Masters at KTH, Sweden. — 2015
- Best prize in speed programming competition in NUST. — 2011

Languages: Full professional proficiency in English.
Citizenship: Sweden **DOB:** Nov 9, 1990

Awais Ashfaq **Publication list**

Contact Information	Fågelvägen 6F, Lgh 1201	+46 702 556 575
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Journal Publications

- **Ashfaq A**, Lingman M, Sensoy M, Nowaczyk S (2023). DEED: DEep Evidential Doctor. Artificial Intelligence. 104019.
  10.1016/j.artint.2023.104019
- Agvall B, **Ashfaq A**, Bjurström K, Etminani K, Friberg L, Lidén J Lingman M (2023). Characteristics, management and outcomes in patients with CKD in a healthcare region in Sweden: a population-based, observational study. BMJ open 13.7: e069313.
  10.1136/bmjopen-2022-069313
- Davidge J, Halling A, **Ashfaq A**, Etminani K, Agvall B (2023). Clinical characteristics at hospital discharge that predict cardiovascular readmission within 100 days in heart failure patients–An observational study. International Journal of Cardiology Cardiovascular Risk and Prevention. 16:200176.
  10.1016/j.ijcrp.2023.200176
- Davidge J, **Ashfaq A**, Ødegaard KM, Olsson M, Costa-Scharplatz M, Agvall B. (2022). Clinical characteristics and mortality of patients with heart failure in Southern Sweden from 2013 to 2019: a population-based cohort study. BMJ open. 12(12) e064997.
  10.1016/j.ajem.2021.09.079
- Wibring K, Lingman M, Herlitz J, **Ashfaq A**, Bång A. (2022). Development of a prehospital prediction model for risk stratification of patients with chest pain. The American Journal of Emergency Medicine, 51, 26-31.
  10.1016/j.ajem.2021.09.079
- Heyman E T, **Ashfaq A**, Khoshnood A, Ohlsson M, Ekelund U, Holmqvist L D, Lingman M (2021). Improving Machine Learning 30-Day Mortality Prediction by Discounting Surprising Deaths. The Journal of Emergency Medicine, 61(6), 763-773.
  10.1016/j.jemermed.2021.09.004
- Yasin Z M, Anderson P D, Lingman M, Kwatra J, **Ashfaq A**, Slutzman J E, Agvall B (2021). Receiving care according to national heart failure guidelines is associated with lower total costs: an observational study in Region Halland, Sweden. European Heart Journal-Quality of Care and Clinical Outcomes, 7(3), 280-286.
  10.1093/ehjqcco/qcaa020
- **Ashfaq A**, Lönn S, Nilsson H, Eriksson J A, Kwatra J, Yasin Z M, ..., Lingman M (2020). Data resource profile: Regional healthcare information platform in Halland, Sweden, a dedicated environment for healthcare research. International Journal of Epidemiology.
  10.1093/ije/dyz262
- **Ashfaq A**, Sant'Anna A, Lingman M, Nowaczyk S (2019). Readmission prediction using deep learning on electronic health records. Journal of Biomedical Informatics, 97, 103256.
  10.1016/j.jbi.2019.103256

- Blom M C, **Ashfaq A**, Sant'Anna A, Anderson P D, Lingman M (2019). Training machine learning models to predict 30-day mortality in patients discharged from the emergency department: a retrospective, population-based registry study. BMJ open, 9(8), e028015.
  10.1136/bmjopen-2018-028015

Conference Publications

- **Ashfaq A**, Lingman M, Nowaczyk S. (2021). KAFE: Knowledge and Frequency Adapted Embeddings. In International Conference on Machine Learning, Optimization, and Data Science (pp. 132-146). Springer, Cham.
  10.1007/978-3-030-95470-3_10
- Cooney M, Pashami, S, Järpe E, **Ashfaq A**. (2019). Avoiding Improper Treatment of Persons with Dementia by Care Robots. In ACM/IEEE International Conference on Human-Robot Interaction (HRI) Workshop on The Dark Side of Human-Robot Interaction.
  urn:nbn:se:hh:diva-39448
- **Ashfaq A**, Nowaczyk S (2019). Machine learning in healthcare - a system's perspective. In proceedings of the ACM SIGKDD Workshop on Epidemiology meets Data Mining and Knowledge Discovery (epiDAMIK) p. 14-17.
  urn:nbn:se:hh:diva-40395
- **Ashfaq A**, Adler J (2017). A modified fuzzy C means algorithm for shading correction in craniofacial CBCT images. In CMBEBIH 2017 (pp. 531-538). Springer, Singapore.
  10.1007/978-981-10-4166-2_81

Thesis

- **PhD:** Deep evidential doctor. Halmstad University Dissertations; 88 (2022)
  urn:nbn:se:hh:diva-46347
- **Licentiate:** Predicting clinical outcomes via machine learning on electronic health records. Halmstad University Dissertations; 58 (2019)
  urn:nbn:se:hh:diva-39309
- **MS:** Segmentation of cone beam CT in stereotactic radiosurgery. KTH TRITA-STH; 2016:104 (2016)
  urn:nbn:se:kth:diva-193107