
Accenture – Human Health Insights – Disease Prediction for Population Health Management

TIN-ACC-029

About the Organisation

Accenture's Human Health Insights practice sits within the wider multidisciplinary Data & AI team of experts across a range of academic and industry backgrounds. Join us to help transform leading organisations and communities around the world. Accenture is driving these exciting changes and bringing them to life across 40 industries in more than 120 countries. The sheer scale of our capabilities and client engagements and the way we collaborate, operate, and deliver value provides an unparalleled opportunity to grow and advance.

Role Description and Responsibilities

Health systems across many advanced economies are facing increasing pressure due to a combination of aging populations, increased prevalence of chronic disease, and increasing per capita costs of medical care. In response to these challenges, health policymakers are seeking to move from a reactive model of care which treats illnesses when they arise to a proactive model which intervenes early to prevent adverse healthcare events. Recent advances in Deep Learning (DL) are a promising contributor to this process, offering the potential to automatically scan large healthcare datasets, anticipate demands, and improve patient experience and outcomes.

The Opportunity

Our team has developed DL models to predict diagnosis of a range of conditions based on past medical history. These models have been developed and tested on a database of 50m electronic patient records from the USA which our team has access to. We are now partnering with highly-respected healthcare clients delivering healthcare to large populations to iterate, refine and test those models and align them to the needs of clinical users. This project will focus on:

- developing new ways of modelling Electronic Patient Record (EPR) data to create Machine Learning models for healthcare.
- developing methodologies for the real-world application of AI solutions in healthcare, including integration into clinical workflows.
- ensuring that models meet high standards for Responsible AI required by healthcare use cases (fairness, inclusiveness, explainability, reliability and safety).

The successful candidate will have the opportunity to integrate successful methodologies into

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the Accenture solution and participate in relevant publications. Throughout the project, you will receive mentoring from senior members of the Human Health Insights data science team and will also report directly to senior client stakeholders. You will work closely with Accenture and client research teams to explore new possibilities for AI in healthcare.

Intern responsibilities:

The successful candidate will work as part of a blended team comprised of Accenture and Client Data Scientists and clinical stakeholders. The intern's role within the team will include:

- Propose and develop novel methodologies for predicting patient outcomes from healthcare datasets.
- Conduct literature review on state-of-the-art clinical AI research
- Rigorously evaluate proposed techniques on real-world anonymised patient datasets
- Present findings regularly to research team and senior leadership from both Accenture and the Client

Expected Outcomes

The outcome of this internship will be a set of models for predicting clinical outcomes assessed for both performance and adherence to responsible AI principles – these outcomes will be shared team outcomes to which the successful candidate is expected to be a material contributor.

Supervision and Mentorship

This role will report into Accenture's Human Health Insights Innovation team. The selected individual will become a member of Accenture's Human Health Insights R&D group and will be expected to participate in the team's collaboration and learning and development activities. This is an exciting opportunity to grow your research skills and build your network in an emerging field of applied AI.

Ideal Intern

We are seeking a PhD candidate with experience / expertise in at least one of the following areas:

- Natural Language Processing (NLP) especially transformers and LSTMs
- Causal AI
- Explainable AI
- AI fairness and inclusiveness
- AI reliability and safety
- Healthcare datasets, especially Electronic Patient Records, and healthcare analytics

Teamwork and a willingness to work collaboratively with both Accenture and client teams is also a must.

The Ideal Intern will have:

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- A demonstrable passion for applying AI to solve real-world problems.
- An understanding of the best practices in Python development and familiarity with data structures and algorithmic efficiency.
- Ability to pause their PhD for the duration of the internship and to return to their studies upon completion.

Internship Logistics

Location: This internship will be hybrid with encouraged in-person collaboration and can be based out of Accenture's offices in London, Edinburgh, Leeds, Manchester or Birmingham. Applications from candidates wishing to work fully remotely will also be considered.

Start Date: May 2024 and the duration will be 6 months. There will be an opportunity to start earlier if required.

Salary: The remuneration will be pro-rated based on an equivalent annual salary of £35,000 per annum pro rata.

This is a full-time position, and we regret that we are unable to consider part-time applications.

When applying, please highlight any experience working with healthcare data and methodologies, responsible AI methodologies, and any other exposure to relevant techniques and/or Python libraries.