Teamproject

AI driven clinical trial matching for patients:

An approach to automate patient study eligibility evaluation in the field of oncology

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Fakultät für Wirtschaftsinformatik und Wirtschaftsmathematik

Contact Partner: Ursula Rost

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Motivation

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Situation:

- The number of oncology clinical trials worldwide has increased significantly
  - over 35,000 oncology studies have been initiated since 2007
  - the number of new trials started annually rose from about 2,500 in 2007 to nearly 4,000 in 2017
- Patients with active cancer who have already received all standard treatment are in particular need to receive information on clinical trials
- However, worldwide only about 3–5% of adult cancer patients participate in clinical trials at any point in their care
- Even among eligible patients, enrollment rates vary widely depending on trial phase, disease type, and geographic location. For cancer trials, acceptance rates range from 14% to 52%.
- A major barrier is that 77.9% of patients report never discussing clinical trials with their doctor during hospital visits.

Project Goal

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You will develop an approach to match patients with clinical trials:

Based on:

- European and US Databases on Oncological Clinical Trials
- Patient data in health documents, such as
  - molecular pathology reports
  - physician letters summarizing the condition and tumor manifestations of the patient

Desired Outcome:

- Create list of clinical trial recommendations based on Patient characteristics (e.g. trials next to location)
- Provide level of published evidence of study medication activity

Benefits and Requirements

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Language: German/English
Duration: 6 months
Participants: 3–5 students

What should you bring?

- **Data Analysis and Data Mining** Skills
- Familiarity with **LLMs** and (Unsupervised) **Machine Learning**
- Understanding of **Data Modeling** and training **AI models**
- **Programming Experience** (preferrably knowledge in Web-Development, Python, Pytorch, and scikit –Learn)

What's in it for you?

- **Deeper understanding of ML** through real-world application
- **Work on a real software project** with impact
- **Flexibility:** Fully online participation possible
- **Hands-on experience** in web development

Links and People

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Clinical trial databases:

- EMA: https://www.clinicaltrialsregister.eu/ctr-search/trial/2011-000840-70/IT
- FDA: Clinical Trials Register

People:

- Prof. Dr. med. Thomas Möhler (Universität Heidelberg, Medizinische Fakultät Heidelberg)
- Dr. Ing. Ursula Rost (Universität Mannheim)
- Daniel Kraiczek (Master‘s programme Artificial Intelligence, Utrecht University)

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Questions?