AI in Healthcare

Course Description

The course gives an overview over a wide range of topics in which artificial intelligence has the potential to transform the way healthcare operates. The course starts with an introduction to the key stakeholders in healthcare. Afterwards, discovery of new drugs and medicines are discussed where artificial intelligence is already starting to make a big impact. Next, the topics personalized care, blockchain in healthcare and fraud detection are discussed which are key drivers in the digitalization of healthcare in the future. Finally, the course covers the foundations of regulations and ethics in healthcare with a strong focus on data driven methods and artificial intelligence, including data protection, bias in AI and explainable AI methods.

Contents

1. Healthcare Stakeholders
   1. Healthcare Management
   2. Insurance & Intermediaries
   3. Pre-Clinical & Clinical Care Providers
   4. GP & Specialist Care
   5. Industry (Pharma / Medical Products)
   6. Patents & Society
2. Drug Discovery
   1. Drug Discovery Approaches
   2. AI in Drug Discovery
3. Personalized Care
   1. Medication Monitoring
   2. Virtual Nursing Assistants
4. Blockchain in Healthcare
   1. Introduction to Blockchains & Medical Blockchains
   2. Blockchain in Organ Procurement
   3. Blockchain for Electronic Health Records (EHR)
   4. Blockchain for Pharma Supply Chain (Forged Drugs, etc)
5. Fraud Detection
   1. Introduction to Fraud Detection
   2. ICD-10 Codes
   3. Fraud Detection in Healthcare Management
6. Regulations and Ethics

6.1 Legal & Regulatory Requirements

6.2 Data Protection Foundations, GDPR

1. Privacy in Machine Learning and AI
2. Bias & Fairness in AI
3. Explainable AI