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Explainable AI and clinical real-world data for personalized cancer treatment

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Although a large amount of data is collected on each patient during cancer care, clinical decisions are mostly based on limited parameters and expert knowledge. This is mainly due to insufficient data infrastructure and a lack of tools to comprehensively integrate diverse clinical data. At University Hospital Essen, medical data is stored in FHIR format, enabling cutting-edge analyses of real-world patient journeys. Based on the multimodal data from more than 15,000 cancer patients, explainable AI (xAI) can model individual patient outcomes, integrating clinical records, image-derived body compositions, and genetic data. xAI makes it possible to assess the prognostic contribution of each parameter at both the patient and cohort level and provide AI-derived (AID) markers for clinical decision support. This demonstrates how efficient hospital data management, combined with AI techniques, can fundamentally transform cancer care.

Type of presentation

Invited Talk

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