Medical University of Graz

Data Convener for Digital Health (DH) apps “DH-Convener"

Summary

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Supervisors:	Prof. Dr. Stefan Schulz Dr. Rada Hussein
Availability:	This position is available.
Offered by:	Medical University of Graz
Application deadline:	Applications are accepted between March 24, 2021 00:00 and May 05, 2021 23:59 (Europe/Zurich)

Description

Background:

The use of Patient-Generated Health Data (PGHD) in clinical practice and research is currently in a promising and expanding stage [1]. The DH-Convener project aims to integrate PGHD –by health and fitness apps –with the Austrian electronic health record (ELGA) [2]. This interoperability is a prerequisite for the digital innovations envisioned for future medicine [3, 4].In May 2020, the LBI-DHP participated and won with the DH-Convener concept in the Nexus Digital Health Innovation Challenge, under the use case "Dealing with future health data organization" [5]. This national competition was organized by the Federal Ministry for Climate Protection, Environment, Energy, Mobility, Innovation, and Technology (BMK)

Hypothesis and Objectives:

To realize the DH-Convener concept, the supervisors will collaborate with the CBmed Center for Biomarker Research to hire a PhD student for building the required interoperability modules at semantic level. Ultimately, DH-Convener aims to provide interoperability and privacy as a service, to:•connect digital health services, through integrating PGHD with electronic health records•support delivery of integrated care, through supporting clinical care along with mobile health and wellness services•exchange data with global and public health registries, through participating in global epidemic control and surveillance programs•maintain the EU General Data Protection Regulation (GDPR) compliance, through considering data privacy by design.

Methodology:

The PhD student will be involved in investigating the state of the art of PGHD interoperability. Based on that, the challenges and implementation gaps of PGHD integration and exchange will be identified. The PhD student will focus on and semantic interoperability and terminology standards.To overcome the identified problems, both students will utilize on the current breakthroughs technologies that force interoperability in addition to existing technical infrastructure, as follows:

- Health Informatics standards and interoperability frameworks: Health Level 7 (HL7), Fast Healthcare Interoperability Resources (FHIR), Integrating the Healthcare Enterprise (IHE), Continua guidelines for personal health systems interoperability.
- Terminology standards (SNOMED CT and LOINC)•The Austrian Personalised Electronic Health Record (ELGA)
- The World Health Organization (WHO) blockchain-based platform (MiPasa) [6]
- Available DH apps (HealthKit from Apple, Google Fit from Google, and S Health from Samsung, and others)
- Technologies that ensure GDPR compliance (for example, Chino.io)

Finally, the lessons learned on addressing existing gaps of PGHD interoperability will be communicated with the health informatics bodies and researchers for further consideration.

References:

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3. Lehne M, Sass J, Essenwanger A, Schepers J, Thun S. Why digital medicine depends on interoperability. npj Digit Med. 2019 Dec;2(1):79.
4. Forces of Change -The future of health | Life Science and Health | Deloitte [Internet]. Deloitte Insights. Available from: https://www2.deloitte.com/us/en/insights/industry/health-care/forces-of-change-health-care.html
5. BMK Infothek: https://Infothek.bmk.gv.at/nexus-challenge-die-zukunft-der-medizin-gestalten/
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