

Trust Models in Healthcare IoT Systems

Introduction

Trust models in the Internet of Things (IoT) are critical frameworks designed to ensure the security, reliability, and integrity of interactions within IoT ecosystems. They employ various criteria and metrics, such as historical behaviour, reputation scores, and the nature of data exchanges, to assess and assign trust levels. The development and implementation of trust models confront several challenges, including the heterogeneity of IoT devices, scalability issues, and the dynamic nature of IoT environments (Schukat et al., 2016).

Autism Spectrum Disorders (ASDs) refer to a group of neurodevelopmental disabilities that affect an individual's social interaction, communication, interests and behaviour (Ousley and Cermak, 2014). Atypical sensory characteristics (ASC) is one of the most common issues observed in individuals with ASD (American Psychiatric Association, 2013). ASC makes it challenging for individuals with ASD to access general health services, and an individual's responses to ASC can negatively impact these individuals in getting timely diagnoses and receiving appropriate support pre- and post-diagnoses (NHS, 2022). There are cases of over-shadowing diagnoses in individuals with ASD because of ASC, and stereotyped understandings of ASD in professionals (Gupta and Gupta M, 2023). 80% of adults with ASD reported difficulty visiting a GP, with 51% rating the waiting room environment as a barrier (Doherty et al., 2022).

Problem Context

The project aims to deliver a trust model for IoT devices which works with applications to support healthcare professionals and carers to provide care to individuals with ASD, when accessing a primary and/or secondary care setting. The project should focus on delivering a model which assesses the use of off-the-shelf devices, producing and accessing data at different granularities and recency, and make recommendations to its users. The project should use AI methods to integrate simplicity in the setting up and management of security, specifically to increase accessibility and utilisation of the system while requiring minimum technical knowledge from the user.

Person Description

The candidate should be comfortable working with data and hardware, with background in security and/or trust. Some knowledge of AI methods such as NLP would also be useful.

Supervisory Team

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Contact

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References

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