**Bibliotecas Inteligentes: Integrando Personas Sintéticas e Inteligência Artificial para Serviços Personalizados.**

***Smart Libraries: Integrating Synthetic Personas and Artificial Intelligence for Personalized Services***

**Keywords:** Artificial Intelligence, Synthetic Personas, Library, Personalization.

**Eixo temático:** Ciência de Dados e Inteligência Artificial

**Abstract:**

This study proposes the use of synthetic personas as a methodological strategy for the personalization and innovation of library services through the integration of Artificial Intelligence and Data Science techniques. Service personalization is an increasing demand in contemporary libraries, and the proposed method can transform librarianship practices by providing more relevant and customized experiences for users. Based on the analysis of historical data and the application of algorithms for generating synthetic profiles, a framework is developed to continuously test and improve engagement, curation, and information access strategies.

The first stage consists of diagnosis and data collection, involving the gathering and analysis of information about the community’s profile, such as age, education level, usage frequency, types of borrowed materials, and participation in cultural events. These data support the modeling of synthetic personas, created through statistical clustering and generative AI tools, resulting in representative profiles that simulate the behaviors, interests, and specific needs of different user segments. Subsequently, synthetic personas are used in simulations of interactions with library services, such as book borrowing, participation in cultural activities, and use of library spaces.

These simulations allow for the testing of strategies, such as new communication campaigns or adjustments to operating hours, before their actual implementation. Based on the insights obtained, personalized actions are developed, including the creation of thematic collections, adjustment of event calendars to match identified profiles, and the offering of new services such as workshops and reading clubs, promoting greater alignment with community demands. The adoption of this approach contributes to strengthening the library as a smart, inclusive, and innovative environment, fostering an organizational culture oriented towards continuous improvement and data-driven experimentation.