

**Project Title:** A Prototype Study of Distance Service Systems

**Project start and end dates:** 12/15/2022 – 12/14/2027

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**Project description:**

Distance service systems enabling remote delivery of traditional face-to-face services such as medical or psychological counseling, instructing, and dating have been an important societal aspect more than ever in this post-pandemic period. Many efforts have been attempted to optimize several critical sub-systems to build and run such distance service systems, including communication, data storage, and data analysis based on and for artificial intelligence (AI). However, little research seems to have been done to investigate how and whether those sub-systems can be integrated while maintaining their peak performances.

In this project, we propose to implement a prototype distance service platform and use it to synthesize and evaluate existing techniques that optimize sub-systems to find out whether those techniques are still valid in an integrated environment. Based on our findings, we will then submit our recommendations regarding optimal tradeoffs among and limitations of those used techniques.

Our project will initially focus on a prototype for a remote medical diagnostic system. The selection of medical diagnostic systems is simply that it is among the distance service systems with the most stringent requirements on quality and being most essential for society in case of another pandemic period. Our prototype will bridge several sub-systems: audio/video communication sub-system, an electronic medical record sub-system, and an AI data analysis sub-system. Upon successful implementation, we will scale it to a more general distance service platform. The delivery of our project will consist of a working and reusable prototype of the distance service system and a report containing the information as outlined above. In addition, all our implementation will be open source and benefit society.

A part-time developer or will be hired to assist the PI to develop the said prototype system.