Computing in Telemedicine—Part II

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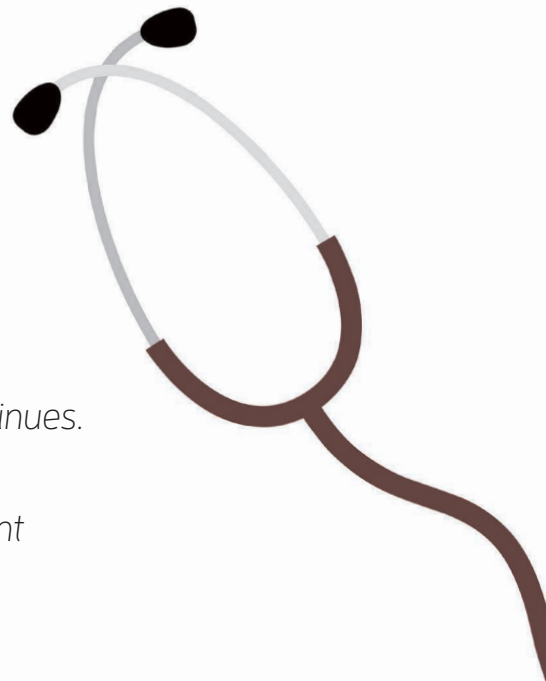
The demand for effective telemedicine innovations continues. Remote patient monitoring, one of many telemedicine technologies, is increasingly popular as it improves patient outcomes by allowing providers ways to monitor chronic conditions while easing the burdens on patients.

In the first part of the Telemedicine special issue, we included five articles presenting a few innovative and exciting contributions relating to computing in telemedicine. In this issue, we include three more telemedicine innovations, focusing on remote patient monitoring.

[**IN THIS ISSUE, WE INCLUDE THREE MORE TELEMEDICINE INNOVATIONS, FOCUSING ON REMOTE PATIENT MONITORING.**]

ABOUT THIS ISSUE

The first article, "Recent Trends in Telecardiology and Telemedicine: Where Are They Leading Now?"[A1] presents trends and future directions in wearable monitoring devices for cardiovascular patients. Specifically, the authors provide a review of the features and limitations of current heart disease monitoring systems. They discuss possible extensions of the current management of cardiovascular monitoring using more cost-effective Bluetooth and mobile connections while considering quality requirements such as ease of use and data accuracy.

Our next article, "Distributed Ledger Technologies for Electronic Health Care: IOTA-Based Remote Patient Monitoring and Telemedicine System"[A2] presents a proof-of-concept system to securely store patient data using IOTA—a distributed ledger technology (DLT) that uses directed acyclic graph instead of using conventional blockchain linked-list data. The proposed scheme using IOTA as middleware offers an improvement in many quality requirements. The system provides mechanisms to anonymize and verify patient data while leveraging immutability, efficiency, scalability, and performance requirements.

The next article, "Container-Based Data Pipelines on the Computing Continuum for Remote Patient Monitoring,"[A3] discusses the technical and nontechnical challenges that

APPENDIX: RELATED ARTICLES

A1.   H. Y. Ko Ko, C. Mozumder, N. K. Tripathi, and I. Pal, "Recent trends in telecardiology and telemedicine: Where are they leading now?" *Computer*, vol. 56, no. 10, pp. 20–30, Oct. 2023, doi: 10.1109/MC.2023.3288193.

A2.   N. Nasir Minhas, M. W. Mubeen, and H. Khawaja, "Distributed ledger technologies for electronic health care: IOTA-based remote patient monitoring and telemedicine system," *Computer*, vol. 56, no. 10, pp. 31–39, Oct. 2023, doi: 10.1109/MC.2023.3303315.

A3.   N. Nikolov, A. Solberg, R. Prodan, A. Soylu, M. Matskin, and D. Roman, "Container-based data pipelines on the computing continuum for remote patient monitoring," *Computer*, vol. 56, no. 10, pp. 40–48, Oct. 2023, doi: 10.1109/MC.2023.3285414.

emerge from remote patient services. The research argues for the use of (big) data pipelines for remote patient monitoring with the goal of addressing the data processing challenges for remote patient care—to address the increased demand for such services. The authors showed how the challenges are addressed using the DataCloud toolbox and Computing Continuum schedulers. ▣

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