Preface

Dear UTMJ Reader,

It is with great pleasure that we invite you to explore the first issue of the University of Toronto Medical Journal's 96th volume – **Artificial Intelligence in Healthcare**. Artificial intelligence (AI) can be broadly defined as the use of intelligent computer systems to perform complex tasks with minimal to no human intervention. Without a doubt, AI has started to impact our society in ways that we could have never imagined just a decade ago. With respect to healthcare, AI-based technologies have shown tremendous promise for enhancing clinical decision making, increasing accessibility to healthcare services and standardizing methods of care. Machine learning is also being used to identify ways to improve the prevention, diagnosis, management and prognostication of important medical conditions through large-scale analyses of data contained within electronic medical records. Despite the rapid development of AI-based technologies and a growing body of research supporting their clinical utility, these technologies have yet to be implemented into daily practice. Indeed, significant ethical, privacy, patient-safety and economic concerns have been raised regarding AI-based technologies and will need to be carefully addressed before these systems become commonplace in the healthcare setting.

This issue on AI in Healthcare provides a broad overview of the potential applications of AI-based technologies across different areas of medical practice, including Anesthesia, Emergency Medicine, Dermatology, Neurosurgery, Oncology, Obstetrics and Gynecology, Psychiatry, Pediatrics and Primary Care. Although the nature of each of these fields of medicine differs considerably, the articles presented within this issue highlight the fact that AI-based technologies are largely being used to achieve similar goals across clinical specialties and are faced with similar barriers to implementation. In this issue you will also find articles discussing current concerns regarding privacy and the inclusion of data from diverse patient groups when training AI-based systems. The evolution of AI in medicine and the implementation of these technologies in healthcare are further explored in our interviews with **Dr. Sunit Das**, a neurosurgeon at St. Michael's Hospital, scientist at the Keenan Research Centre for Biomedical Science and Associate Professor in the Division of Neurosurgery at the University of Toronto, and **Dr. Yunghan Au**, the VP of Medical Affairs for the Toronto-based company Swift Medical, which specializes in digital wound care management.

We hope that this timely issue piques your interest and furthers your understanding of the current and future roles of AI in both medicine and the healthcare system as a whole. Given the pace of technological advancements and research in this field, it is likely that AI-based technologies will soon make their way into clinical practice. If used appropriately, AI has the potential to revolutionize medical care on a global level. However, it is important that the promise of AI-based technologies does not supersede the need for rigorous clinical study and appropriate regulation. As AI begins to be integrated into healthcare systems, medical trainees and clinicians must understand and acknowledge the limitations of this technology, and continue to use their clinical judgement to guide decision making.

The success of this issue would have not been possible without the talented, diverse, and dedicated ***UTMJ*** editorial team, the authors that allowed us to showcase their important work, the patrons that continue to support the ***UTMJ*** and, most importantly, you the reader. As a way to acknowledge the hard work and dedication of our authors, awards have been provided for the top three student submission in this issue. We hope that you enjoy reading this issue as much as we enjoyed preparing it.

Appreciatively,

Mark Lukewich and ***Mazen El-Baba***
UTMJ Editors-in-Chief 2018-2019