Innovations in healthcare are inevitable, and new technologies evolve consistently to streamline the workflow of healthcare systems. Optimization of the healthcare system and automation is the core of healthcare 4.0. The major objective of the healthcare 4.0 system is to develop patient-oriented methodologies so that they can come out with better technology and healthcare delivery services. Researchers worldwide from various technical disciplines such as artificial intelligence (AI), robotics, the internet of things (IoT), and information security were actively involved in developing innovative healthcare solutions closely related to patient preferences and precisely promoting personal care services. In this special issue, we will explore how the innovations in AI-assisted cognitive cyber-physical systems (CPS) contribute to the development of research on healthcare 4.0.

AI-assisted cognitive CPS greatly revolutionized the automation of the healthcare sector, particularly concerning the development of more capable devices for diagnosis. Many researchers may feel cognitive CPS for healthcare 4.0 may look very much like the existing one except with the optimization of medical devices. But the real fact is that CPS, along with cognitive computing and AI techniques, plays a major role in future healthcare systems. It establishes a more defined relationship between the human and the machines. It enables process decentralization and enhances the logical process and problem-solving abilities of healthcare applications. It allows humans and machines to communicate and collaborate with each other in real-time in a more sophisticated way through new innovative internal and external prosthesis. Furthermore, it optimizes the unmatched cognitive abilities of humans with the precise nature of bots and machines and increases the effectiveness of home care with advanced functionalities. In a nutshell, cognitive CPS with AI for healthcare 4.0 makes healthcare more responsive through advanced connective devices, incorporates new functionalities with virtual reality, provides new healthcare services with AI, and improves the experience of remote healthcare and monitoring. With all of these exciting innovations, it is more important than ever to explore more in this regard as it is at an earlier stage of development. In this context, this special issue invites researchers and practitioners to present their novel and innovative research contributions for this special section.

Topics of interest for this special issue include, but are not limited to:

- Advances in cognitive CPS with AI for healthcare 4.0
- New innovative cognitive CPS architectures, frameworks, and methodologies for healthcare 4.0
- Cognitive ambient intelligence and humanized computing for healthcare
- Synergy of cloud/fog/edge/big data technologies with healthcare CPS for cognitive knowledge and data management
- Security and privacy in AI assisted cognitive CPS for healthcare
- Reliable, trust-worthy, fault tolerant, and consistent cognitive CPS models for healthcare 4.0
- Disruptive technologies for enabling AI assisted cognitive CPS for healthcare 4.0
- Cognitive cyber-medical systems
- Cyber-physical human system for health informatics
- Human-centered AI for cognitive CPS in healthcare
- Impact of cognitive CPS on future healthcare
- AI assisted cognitive CPS for Internet of Medical Things (IoMT)

**IMPORTANT DATES**

Submission deadline: **January 20th, 2022**
Authors notification: **March 24th, 2022**
Revised papers due: **June 13th, 2022**
Final notification: **September 5th, 2022**

**HOW TO SUBMIT**

The submitted article must be original, unpublished and not currently reviewed by other journals. In the cover letter for each manuscript, authors must mention the Special Issue topic and the name of the Guest Editors, so they can be notified separately. Please visit [https://mc.manuscriptcentral.com/jisys](https://mc.manuscriptcentral.com/jisys), and when submitting your paper please select the article type "S.I. : Cognitive Cyber-Physical System with Artificial Intelligence for Healthcare 4.0".