

- **Name:** Wonchul Cha
 - **Current Position & Affiliation:** CIO / Office of Data & Digital Transformation at SMC
Director / Center for Data Innovation at SMC
Associate Professor / Department of Emergency Medicine at SKKU
Associate Professor / Department of Digital Health at SHAIST, SKKU
 - **Country:** Korea
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- **Educational Background:**

Ph.D. in Medical Engineering, Seoul National University, Seoul, Korea

- **Professional Experience:**

1) Samsung Medical Center

(Present) Director (CIO), Data Innovation Office, Digital Innovation Initiative

- Leading digital transformation in emergency care through integration of AI-driven decision support systems
- Spearheaded the implementation of telemedicine services and integrated control centers
- Developed robotic solutions to assist healthcare professionals in high-acuity settings
- Key contributor to Samsung Medical Center's achievement of the HIMSS 'Quadruple Crown' — Stage 7 certifications in INFRAM, DIAM, EMRAM, and AMAM

(Present) Associate Professor & Emergency Physician

- Extensive clinical experience managing critically ill patients, including trauma, cardiac arrest, and acute medical conditions
- Developed and optimized emergency care protocols to enhance response times and patient outcomes
- Led hospital-wide improvements in emergency response systems through interdisciplinary collaboration
- Provided education, supervision, and mentorship for medical students, residents, and healthcare professionals

2) Sungkyunkwan University

(Present) Associate Professor, School of Medicine

(Present) Associate Professor, Department of Digital Health, Samsung Advanced Institute for Health Sciences & Technology (SAIHST)

• Professional Organizations:

Academic & Research Society Leadership

1) (2017~Present) Digital Health & AI Researcher / Head Director, Smart Health Lab

- Leading a multidisciplinary research lab with over 50 members, including Ph.D. and Master's students, clinicians, and researchers from various fields
- Conducting cutting-edge research in digital health and medical AI to develop practical, real-world clinical solutions
- Focus areas include medical data analytics, AI-powered clinical decision support systems, and predictive patient monitoring models
- Actively collaborating with domestic and international hospitals, universities, and digital health companies to drive high-impact research
- Involved in more than 40 research projects over the past 5 years, serving as principal investigator (PI) for over 20 nationally funded projects
- Authored or co-authored over 70 SCIE-indexed journal articles in the past 5 years
- Contributed to over 15 patent applications (including 4 design patents) and registered 1 software copyright during the same period

2) (2022~Present) President, Emergency Medical Informatics Research Society

3) (2023~Present) President, Generative Models Research Society

4) (2022~Present) Vice President, Korean Society of Medical Artificial Intelligence

5) (2019~Present) Vice President, Clinical Big Data Utilization Research Society

6) (2023~Present) Director of International Collaboration, Korean Society of Medical Informatics

7) (2022~Present) Director of Education, Medical Metaverse Society

8) (2023~Present) Special Director, Korean Society of Health Information and Statistics

9) (2023~Present) Member, Education Committee, Korean Academy of Medicine

Government & Public Sector Committees

1) (2021~Present) Committee Member, Korea Health Industry Development Institute (KHIDI)

2) (2021~Present) Committee Member, MyData Initiative in Healthcare

Editorial & Peer Review Activities

1) (2023~Present) Editorial Board Member, Clinical and Experimental Emergency Medicine (CEEM, ISSN 3022-1811)

2) (2022~Present) Expert Review Board Member, Diabetes & Metabolism Journal (DMJ, ISSN 2233-6079)

3) (2021~Present) Editor Board Member, SIGNA VITAE (ISSN 1845-206X)

Ethics & Review Board Activities

(2018~Present) Institutional Review Board (IRB) Member

Professional Society Memberships

1) (2024~Present) Regular Member, Korean Society of Emergency Medicine

2) (2009~Present) Regular Member, Korean Association of Emergency Medical Instructors

• Main Scientific Publications:

- ✓ WC Cha, et al. "JAVIS Chat: A Seamless Open-Source Multi-LLM/VLM Deployment System to Be Utilized in Single Computers and Hospital-Wide Systems with Real-Time User Feedback" *Appl. Sci.* **2025**, 15(4), 1796
- ✓ WC Cha, et al. "Inter hospital external validation of interpretable machine learning based triage score for the emergency department using common data model" *Scientific Reports* **2024**, 14: 6666
- ✓ WC Cha, et al. "A trial of a chat service for patients and their family members in an emergency department" *BMC Health Services Research* **2024**, 24(1):1058

- ✓ WC Cha, et al. “Development, validation, and usability evaluation of machine learning algorithms for predicting personalized red blood cell demand among thoracic surgery patients” International Journal of Medical Informatics **2024** Nov:191:105543
- ✓ WC Cha, et al. “The potential for drug incompatibility and its drivers - A hospital wide retrospective descriptive study” International journal of medical informatics **2024** Nov:191:105584.
- ✓ WC Cha, et al. “Patient Anxiety and Communication Experience in the Emergency Department: A Mobile, Web-Based, Mixed-Methods Study on Patient Isolation During the COVID-19 Pandemic” Journal of Korean medical science. **2023** Oct 9;38(39):e303
- ✓ WC Cha, et al. “Effect of knowledgebase transition of a clinical decision support system on medication order and alert patterns in an emergency department” Sci Rep. **2023** Dec 1;13(1):21206
- ✓ WC Cha, et al. “Machine learning-based suggestion for critical interventions in the management of potentially severe conditioned patients in emergency department triage” Sci Rep **2022** Jun 22;12(1):10537.
- ✓ WC Cha, et al. “Development of an Interoperable and Easily Transferable Clinical Decision Support System Deployment Platform: System Design and Development Study” Journal of Medical Internet Research. **2022** 7(24):e37928
- ✓ WC Cha, et al. “An external validation study of the Score for Emergency Risk Prediction (SERP), an interpretable machine learning-based triage score for the emergency department” Sci Rep. **2022** Oct 19;12(1):17466.