ACTIVITIES & AFFILIATIONS

ANTHONY CHANG MD, MBA, MPH, MS

Primary Areas of Interest

Artificial Intelligence in Clinical Medicine and Healthcare
Innovation in Pediatric Healthcare
Global and Public Health
Business and Healthcare Administration
Heart Failure in Children and Adults
Pediatric Cardiac Intensive Care

BIOGRAPHY

Dr. Chang attended Johns Hopkins University for his B.A. in molecular biology prior to entering Georgetown University School of Medicine for his M.D. He then completed his pediatric residency at Children's Hospital National Medical Center and his pediatric cardiology fellowship at the Children's Hospital of Philadelphia. He then accepted a position as attending cardiologist in the cardiovascular intensive care unit of Boston Children's Hospital and as assistant professor at Harvard Medical School.

He has been the medical director of several pediatric cardiac intensive care programs (including Children's Hospital of Los Angeles, Miami Children's Hospital, and Texas Children's Hospital). He served as the medical director of the Heart Institute at Children's Hospital of Orange County.

He is currently the **Chief Intelligence** and **Innovation Officer** (CIIO) and **Medical Director** of the Heart Failure Program at Children's Hospital of Orange County. He has also been named a Physician of Excellence by the Orange County Medical Association and Top Cardiologist, Top Doctor for many years as well as one of the nation's Top Innovators in Healthcare.

He has completed a **Masters in Business Administration (MBA)** in Health Care Administration at the University of Miami School of Business and graduated with the McCaw Award of Academic Excellence. He also completed a **Masters in Public Health (MPH)** in Health Care Policy at the Jonathan Fielding School of Public Health of the University of California, Los Angeles and graduated with the Dean's Award for Academic Excellence. He later taught Global Health there. Finally, he graduated with his **Masters of Science (MS)** in Biomedical Data Science with a subarea focus in artificial intelligence from Stanford School of Medicine and has completed a certification on artificial Intelligence from MIT. He is a computer scientist-in-residence and a member of the Dean's Scientific Council at Chapman University.

He has helped to build a successful cardiology practice as a startup company and was able to complete a deal on Wall Street. He is known for several **innovations** in pediatric cardiac care, including introducing the cardiac drug milrinone and co-designing (with Dr. Michael DeBakey) an axial-type ventricular assist device in children. He is a committee member of the National Institute of Health pediatric grant review committee. He is the **editor** of several textbooks in pediatric cardiology, including *Pediatric Cardiac Intensive Care, Heart Failure in Children and Young Adults, and Pediatric Cardiology Board Review.*

He is the **founder** of the **Pediatric Cardiac Intensive Care Society (PCICS)** that launched the multi-disciplinary focus on cardiac intensive care for children. He is also the **founder** of the **Asia- Pacific Pediatric Cardiac Society (APPCS)**, which united pediatric cardiologists and cardiac surgeons from 24 Asian countries and launched a biennial meeting in Asia that now draws over 1,000 attendees.

He is the **founder** and medical director of the **Medical Intelligence** and **Innovation Institute (MI3)** that is supported by the Sharon Disney Lund Foundation. The institute is dedicated to implement data science and artificial intelligence in medicine and is the first institute of its kind in a hospital. The new institute is concomitantly dedicated to facilitate innovation in children and health care all over the world. He is the organizing **chair** for the biennial *Pediatrics2040: Emerging Trends and Future Innovations* meeting as well as the **founder** and **director** of the Medical Intelligence and Innovation Summer Internship Program, which mentors close to 100 young physicians-to-be every summer. He has organized a pediatric innovation leadership group called the **international Society for Pediatric Innovation (iSPI)**.

He intends to build a **clinician-computer scientist interface** to enhance all aspects of data science and artificial intelligence in health and medicine. He currently lectures widely on big data and artificial intelligence in medicine (he has been called "Dr. A.I." by the Chicago Tribune and has given a **TEDx talk** as well as on the **Singularity University faculty** ([1]). He has published review papers on big data and predictive analytics as well as machine learning and artificial intelligence in medicine ([2])([3]). He has completed a **book project** with a **book series** with Elsevier: Intelligence-Based Medicine: Principles and Applications of Artificial Intelligence in Clinical Medicine and Health Care and is the **editor-in-chief** of the **journal** of the same title. He is the **founder** and organizing **chair** of many *Artificial Intelligence in Medicine (AI Med)* meetings in the U.S. and abroad (Europe and Asia) that will focus on artificial intelligence in healthcare and medicine (www.ai-med.io). He has started a new group for clinicians with a special focus on data science and artificial intelligence as **Medical Intelligence Society, or MIS**. Finally, he is the **dean** of the nascent **American Board of Artificial Intelligence in Medicine (ABAIM)** that has education and certification of artificial intelligence in clinical medicine and health care as its mission.

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1 https://www.youtube.com/watch?v=Y5T8nckyuCA
2 www.congenitalcardiologytoday.com/index_files/CCT-NOV12-NA.pdf
3 www.congenitalcardiologytoday.com/index_files/CCT-APR13-NA.pdf

Medical Intelligence and Innovation Institute (MI3)

CHOC Children's®
The Sharon Disney Lund
Medical Intelligence and
Innovation Institute (MI3)

Vision

MI3 is a first-of-its-kind institute that creates and executes projects in the domains of artificial intelligence as well as medical and surgical innovation in medicine and healthcare.

These two interrelated disciplines, especially limited in development in the pediatric realm, hold great promise to change the trajectory of clinical medicine and pediatric care around the world. MI3 aims to foster robust developments in artificial intelligence methodologies, as well as innovative advances in emerging areas such as genomic medicine, regenerative medicine, robotics, nanotechnology and medical applications/ devices. MI3 is dedicated to empowering data intelligence and medical innovation at CHOC, and driving innovation leadership in the international pediatrics community. This institute is also the founding entity for the international Society of Pediatric Innovation (iSPI) and the MI3 Summer Internship Program.
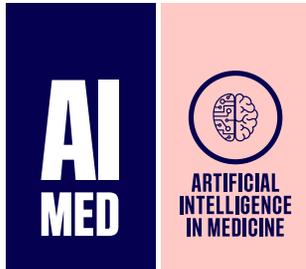
Website: https://www.choc.org/medical-intelligence-and-innovation-institute/

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Artificial Intelligence in Medicine (AIMed)

Vision

AIMed is a multimedia educational and networking platform especially designed for supporting the entire ecosystem of AI in healthcare and medicine for clinicians and administrators as well as data scientists and AI entrepreneurs and companies.

The aim is to assist medical professionals to discover new ways to incorporate advances in AI technology to improve patient outcome. The AIMed meetings portfolio includes: regional Global Summits and annual AIMed Meetings, Clinician Series designed for various subspecialties, and AIMed Talks that focus on a myriad of topics. These meetings are especially friendly to clinicians who would like to further their education and expertise in AI in medicine as well as network with others in AI especially members of their subspecialty. AIMed drew about 600 attendees to the annual meeting last year, and it hosts close to 20 international meetings a year. There is a robust website with many resources (including AIMed webinars, talks, as well as video clips from prior meetings and an academic magazine, AIM). Lastly, AIMedConnect is a new and exciting networking event in which key stakeholders in a specific domain are convened for an honest interactive user group/think tank virtual meeting.

Website: https://ai-med.io

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Medical Intelligence 10 (MI10)

Vision

MI10 is a multidisciplinary advisory group for assessing AI capabilities as well as formulating precise AI strategies for health systems, AI in healthcare companies, professional schools, and venture capital firms.

MI10 Advisors is an AI-inspired education, advisory and consultation firm that helps healthcare systems and hospitals and professional schools (medical, nursing, and pharmacy) as well as AI in healthcare companies and venture capital firms attain the highest value for any expenditure or investment in AI in healthcare and medicine. MI10 has a highly qualified team of experts with wide-ranging experience in the fields of healthcare and artificial intelligence with unparalleled direct access to many key opinion leaders from the AI in medicine domain. This team is supported by a proprietary AI scoring system (MIQ) that helps to continually evaluate the client in AI capabilities to stay on the cutting edge of artificial intelligence in healthcare. MI10 was named one of Top Healthcare Solution Providers by the CIO Review magazine.

MEDICAL INTELLIGENCE 10
Intelligence-Based Medicine™

Website: https://mi10.ai

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Medical Intelligence Society (MIS)

Vision

MIS is a clinician-led coalition of clinicians and other stakeholders who are dedicated to the promotion and adoption of AI and data science in clinical medicine and healthcare to improve patient outcomes.

Artificial intelligence is rapidly becoming more pervasive in medicine and healthcare. Clinicians, however, are not always adequately prepared/educated to embrace this new paradigm shift. Physicians or anyone with an education or dedication for data science are ideally suited to be members of this special cohort to both encourage and educate fellow physicians in this burgeoning domain. MIS is an outstanding group of clinicians with a special affinity and passion for data science and AI with over 200 clinicians from various subspecialties. We will have our fourth annual MIS meeting in July 2021 during which we will have a highly interactive program for honest exchange of information. This meeting is open to all clinicians and data scientists but not to commercial entities. We are in the process of adopting the nascent journal Intelligence-Based Medicine as the society home journal (see below).

Website: https://ai-med.io/event/the-medical-intelligence-group-summit/

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ABAIM

American Board of Artificial Intelligence in Medicine

Vision

ABAIM aims to educate all stakeholders in the domain of artificial intelligence in clinical medicine and healthcare and to achieve a standard of qualification and practice for this domain.

The ABAIM is a nascent multidisciplinary board formed to provide certification for anyone who would like this education for their journey of AI in medicine. There are review courses prior to the certification assessments/examinations. The ABAIM vision is to mature this certification strategy to board certification for clinicians (similar to the clinical informatics board certification) and others within a few years.

Website: https://abaim.org/

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# International Society for Pediatric Innovation (iSPI)

Vision

The International Society for Pediatric Innovation (iSPI) was formed to address the unmet need for an open global network focused on innovation leadership. iSPI provides a unique opportunity for pediatric leaders to be at the cutting edge of technological influence and creative energy. Through the exchange of ideas, data, knowledge, and experience, we will be uniquely armed with collective medical intelligence. We'll share the latest thought leadership and insights to empower hospitals and individuals to leverage emerging innovations. Together let's improve the future of pediatric health care delivery everywhere. If not us, then who?

Website: https://ispi4kids.org

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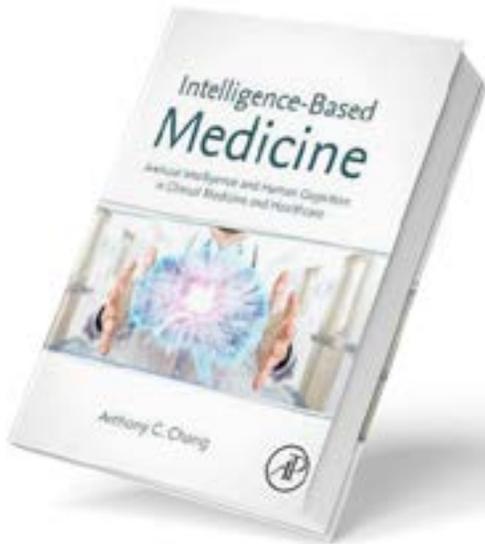
Intelligence-Based Medicine: Artificial Intelligence and Human Cognition in Clinical Medicine and Healthcare

Released in 2020, the book is a comprehensive 500-page textbook designed for both the clinician as well as the data scientist with sections on AI concepts as well as AI use in the various subspecialties. There are 100 commentaries authored by many experts in a variety of areas as well as an extensive compendium of resources (including a 500+ word glossary).

★★★★★
"A must-read for healthcare innovators"

★★★★★
"An engaging and in-depth look at the future of healthcare"

★★★★★
"THE textbook on AI in healthcare"
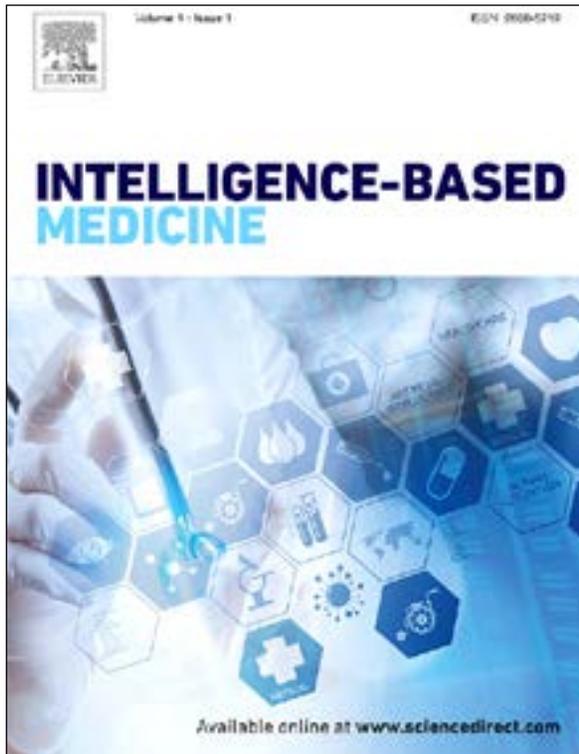
★★★★★
"Insightful and Illuminating"

★★★★★
"The Bible of Healthcare AI"

Available for purchase at Elsevier or Amazon

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Intelligence-Based Medicine Journal

This is a new journal that aims to create meaningful synergy between practicing clinicians and others (computer scientists, data scientists, engineers, cognitive scientists, entrepreneurs, etc.) in deploying methods of artificial intelligence and human cognition in the practice of medicine and the delivery of healthcare. The primary focus of the journal is on the clinical perspective and translation of emerging technologies into care practices and patient benefits. The journal is intended for all clinicians as well as bioinformaticians and data scientists with artificial intelligence and data science interests and backgrounds. As an open access journal, all articles published in Intelligence-Based Medicine will be immediately and permanently free for everyone to read, download, copy and distribute.

Upcoming Resources

In addition to the book and journal, a book series covering Intelligence-based Medicine in the subspecialties and special domains (such as healthcare executives and entrepreneurship) and a comprehensive 25-part Intelligence-based Medicine video series are in production.

Website: https://www.journals.elsevier.com/intelligence-based-medicine/

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