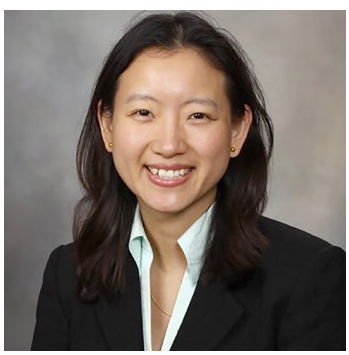
The term "artificial intelligence" (AI) originated in 1956, when it was first coined at a seminar at Dartmouth College, in New Hampshire, USA. "Artificial" was meant to designate the cognitive process of "thinking machines", as opposed to human reasoning. At that time, it was believed that human reasoning was "real" and machine thinking was "artificial".

We have come a long way since the "birth" of AI more than 60 years ago. Significant advancements in AI have occurred as a result of ongoing improvements in data collection and aggregation, computer processing power, storage capacity, and computational algorithms. Some of the most promising applications of AI have been in image processing and image analysis. Such advancements naturally lend themselves to radiology, one of the most imaging heavy subspecialties in medicine. In just a few short years, AI applications in radiology have "blossomed" with radiology being the leading subspeciality in United States Food and Drug Administration (FDA) approved AI algorithms. The number of FDA cleared AI models for chest imaging is second only to neuroradiology, with many more developing in the research pipeline. In addition to radiology, pathology is another image heavy subspecialty where AI has been making headway as well. High-throughput whole-slide scanning technology and digital pathology have set up the perfect launchpad for computational pathology to take off. Despite the on-going exciting progress with image-based AI, patient management does not rely on imaging alone and therefore AI has expanded to other subspecialties, including genetics, surgery, pulmonary medicine, oncology and radiation oncology.

Artificial Intelligence in Thoracic Disease is a collection of review and research articles recently published in AME journals by experts from renowned institutions worldwide. These publications cover AI applications in radiology, pathology, pulmonary medicine, surgery, oncology and radiation oncology. The diversity of topics covered within this book is breath-taking (pun intended), ranging from a review of basic development of an AI network to applying AI towards solving complex patient care challenges to include:

- decoding patients' genomic make-up to aid early disease detection and prognostication
- analyzing pathologic specimens and/or radiologic images to facilitate expedited and more accurate diagnosis
- leveraging AI to improve treatment planning and operative efficacy
- assisting physicians in clinical decision-making for patient management through disease and treatment response surveillance and outcome prediction

Medical AI has grown rapidly in the past few years and will only expand further as technology continues to advance. Although several challenges discussed in the enclosed articles must be overcome prior to widespread clinical adoption, these barriers are not insurmountable given swift development of and increasing accessibility to computer hardware and software. It is only a matter of time before these challenges become history and it is our hope to inform and to prepare our readers of these advancements in thoracic diseases lurking on the horizon. With this in mind, please enjoy our compilation, while thinking of ways that we can leverage the gift of AI to revolutionize pulmonary medicine and ultimately empower each other to optimize patient care.



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