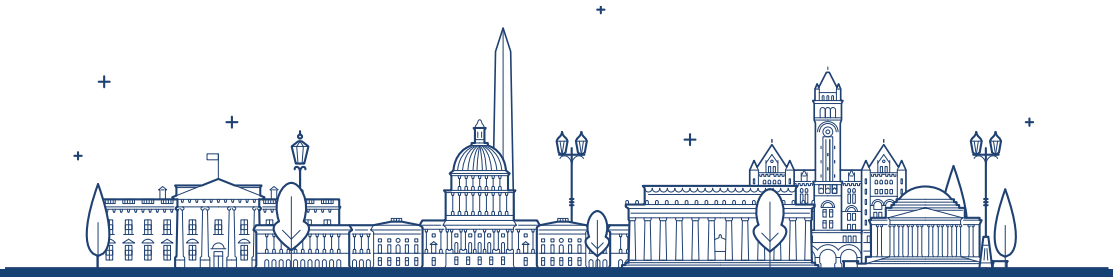
ConnectedHealth

Appendix:

Key Terminology for AI in Health



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The best way to understand artificial intelligence/augmented intelligence (AI) is to understand what AI does. AI can be used autonomously (performing tasks without human intervention) or be designed to enhance human capabilities (sometimes referred to as augmented intelligence). Below we provide key terminology to supplement the Connected Health Initiative (CHI) Health AI Task Force's positions and policy principles. The basis of this terminology is a consensus from a range of healthcare stakeholders, including providers, patients, academic thought leaders, and technology innovators, convened via the CHI Health AI Task Force.

ALGORITHM

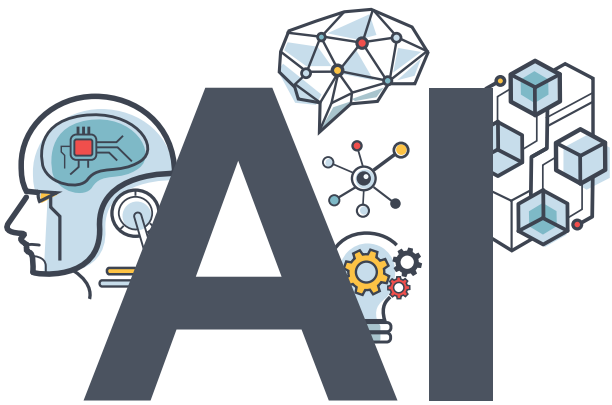
An algebraic representation of how to solve or optimize getting to an answer, creating a set of rules or instructions given to an AI, neural network, or another machine to help it learn on its own.

ARTIFICIAL INTELLIGENCE (AI)

An umbrella term that includes multiple technologies such as machine learning, computer vision, and natural language processing (NLP) that, individually or in combination, add intelligence to applications.

AUGMENTED INTELLIGENCE

An alternative conceptualization of AI advanced by a growing number of innovators and embraced by physican organizations to underscore that such systems are designed to aid humans in clinical decision-making, implementation, and administration to help scale health care.



MACHINE LEARNING

AI with an algorithm that learns and changes without being programmed when exposed to new data. Such knowledge can either be static (data sources that do not change frequently over time) or continuous (continually learning, accumulating, and building on previously learned knowledge in part by generating new algorithms which may be unknown to the original designer or trainer). Machine learning allows inferencing—the ability of an AI model to infer or draw conclusions on data it has never seen before—and can happen in a data center, in the cloud, or on the device (edge computing). Methods of machine learning include:

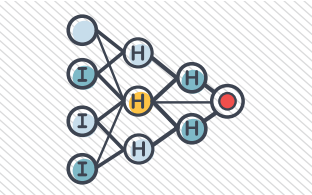
DEEP LEARNING – The ability for machines to autonomously mimic human thought patterns through artificial neural networks designed to work similarly to how the human brain works, using the concepts of neurons and synapses.

REGRESSION – A statistical approach that helps predict future outcomes or items in a continuous data set by solving for the pattern of past inputs, such as linear regression in statistics. Regression is foundational to machine learning and artificial intelligence.

Examples of types of data being processed to create a machine learning model:

COMPUTER VISION

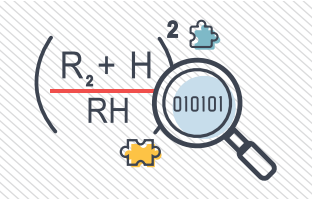
Algorithms that perceive and develop methods for extracting information from images. This may include object detection, segmentation of objects, tagging, and captioning of an image.



NATURAL LANGUAGE PROCESSING

Algorithms used to extract and understand human language and to process it into meaning for a specified area of interest or end-user definition. For example, chatbots are computer programs designed to simulate a conversation with human users by communicating through text chats, voice commands, or both, a commonly used interface for computer programs that include AI capabilities.

Types of Training:



DATA-DRIVEN

AI that reaches conclusions based on having seen a large number of examples of question and answer pairs, which is used as training.

RULES-DRIVEN

AI that utilizes human-crafted or curated rule sets to reach conclusions and self-correction.