Resources: Introduction to Artificial Intelligence

TidBIT

Artificial intelligence impacts our daily lives in a variety of ways. It powers robots and machines, the algorithms that curate our social media feeds and search results, and even digital assistants such as Siri, Alexa, and Google Assistant that "live" in our homes and our pockets. In just the past few decades, we have seen AI evolve from conquering chess (*Deep Blue* in 1997) to conquering Jeopardy (IBM's *Watson* in 2011) and go (*AlphaGo* in 2017). There have been so many developments that it's exciting to think about where we have been and what will be coming next!

References

Anyoha, R. (2017, Aug 28). *The history of artificial intelligence*. Harvard University: Graduate
Schools of Arts and Sciences. Retrieved from
http://sitn.hms.harvard.edu/flash/2017/history-artificial-intelligence/

Greenemeier, L. (2017, June 2). *20 years after Deep Blue: how AI has advanced since conquering chess*. Scientific American. Retrieved from
https://www.scientificamerican.com/article/20-years-after-deep-blue-how-ai-has-advanced-since-conquering-chess/

Required Resources

Reading: Artificial Intelligence ⎘ (https://ezproxy.snhu.edu/login?
url=https://doi.org/10.1017/9781108770422.026)
This reading from the Shapiro Library is a chapter from The Cambridge Handbook of Intelligence. It provides a brief overview of the history of artificial intelligence as well as describing different subfields of artificial intelligence. As you read, consider the following questions:

- What are the differences between engineering and psychological AI?
- What is a production system?
- How does employing statistics affect logic?
- What is agent-based AI?

Reading: Understanding Key Terms in AI ⎘
(https://medium.com/datadriveninvestor/understanding-key-terms-in-ai-415baa8b37a1)
This article explains the different types of learning (reinforcement, machine, etc.) and algorithms that fall under the umbrella of AI. As you read, consider the following questions:

- What are the different types of learning associated with AI?
- How does machine learning work?

Video: State-of-the-Art AI: Building Tomorrow's Intelligent Systems ☐ (https://events.technologyreview.com/video/watch/peter-norvig-state-of-the-art-ai/) (16:01)
In this video Peter Norvig, a director of research at Google, discusses some of the differences between traditional programming and machine learning and how AI is transforming how we live. As you watch, consider the following questions:

- How does AI programming differ from traditional programming?
- What are some challenges faced when using machine learning solutions?

Video: Machine Learning Zero to Hero (Google I/O'19) ☐ (https://www.youtube.com/watch?v=VwVg9jCtqaU) (35:32)
In this video, the concept of machine learning is explained from a programmer's perspective. Different models such as neural networks are discussed, and the differences in the terminology between traditional coding and machine learning are explained. Examples of code are provided and discussed. As you watch, consider the following questions:

- How do you train a neural network?
- How do you know a neural network is working correctly?
- What are convolutions and how do they help with images?

Reading: An A.I. Glossary ☐ (https://www.nytimes.com/2018/10/18/business/an-ai-glossary.html)
This website provides a glossary of commonly used terms and their definitions in the field of artificial intelligence (AI). Consider bookmarking this page so that you can review terms that come up in your readings and assignments.

Additional Support (Optional)

Reading: Jupyter Notebook in Apporto (Virtual Lab) Tutorial ☐ (course_documents/CS%20370%20Jupyter%20Notebook%20in%20Apporto%20Tutorial.pdf?_&d2lSessionVal=QDwt5wtzQKYt4OD37cFKT3Yi0&ou=1347185)
This tutorial will help you navigate the technology you will be using in this course. You will learn how to get into the Jupyter Notebook via the Virtual Lab (Apporto), as well as how to complete, save, and download your work.

Reading: Virtual Lab Student Guide ☐ (/d2l/lor/viewer/viewFile.d2lfile/1347185/21762,-1/)
Review this reading, which is also located in the Virtual Lab Access module, to understand how the

Virtual Lab (Apporto) for this course works. This reading contains instructions on how to access the virtual lab, how to launch the course app, and how to upload files to and download files from Apporto.

Reading: Business Insider: Artificial Intelligence News ⬈
(https://www.businessinsider.com/artificial-intelligence)
AI is a concept that covers a variety of terminology and applications. This optional reading provides some of the different categories of AI present today, such as artificial general intelligence (AGI), conversational AI, machine learning, neural networks, and deep learning. In addition to different types and categories of AI, the article discusses present-day applications and the future

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Explore these resources, which will help you learn how to explain the basic concepts and practical applications of artificial intelligence.

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