

Course Sneak peek

# Deep Learning

## //What's this course about?

As the fastest growing subfield of machine learning, deep learning is the technology behind facial recognition, machine translation, chat bots, and many other novel applications. As governments begin to regulate the technology, as well as embark to use it, technical understanding of deep learning in public policy is invaluable.

In this course, you will learn the main theoretical concepts of (deep) neural networks, and understand modern models for computer vision, sequence modeling, and natural language processing – including how large language models work.

You will bring your Python coding skills to work by training and testing your own models in policy-relevant applications.

## //What are the main learning objectives?

After taking this course you will have the knowledge to scope out new meaningful and robust deep learning applications, implement them, and to advise decision makers on strengths and limitations of the technology.

## //Which topics are covered in the course?

- The course starts off by discussing the ins and outs of neural networks – their structure, how to train them, and why adding more layers makes them more powerful.
- We then cover convolutional neural networks, which lead to a breakthrough in computer vision, before we dive deeper into modeling sequences. A special kind of sequential data is text: the final deep learning topic covered in this course is natural language processing and the attention mechanism.
- Towards the end of the course, we turn our attention to public policy: we discuss deep learning through a policy lens and hear from practitioners about what it means to deploy the technology for public good.

## What have students said about the course?

**<>It deepened my understanding of the topic :-)** I also liked the assignments and the number of assignments and the fact that we had a mid term exam.</>

MDS Class of 2023 student

**<>The guest lecturers were very interesting, the course provided a good overview of Deep Learning, the policy sessions were very relevant (and something we cannot find online.</>**

MDS Class of 2023 student

**<>I liked not only the lecture of Prof. Kaack but also the well thought-out structure of the course which managed to introduce varyingly complex topics of deep learning in a effective and good-to-follow way.</>**

MDS Class of 2024 student

