MCAP WORKSHOP ANNOUNCEMENT:

Introduction to Deep Learning Models and Application to Social Sciences, Dr. Rafael Geurgas (Post-Doc, Sociology)

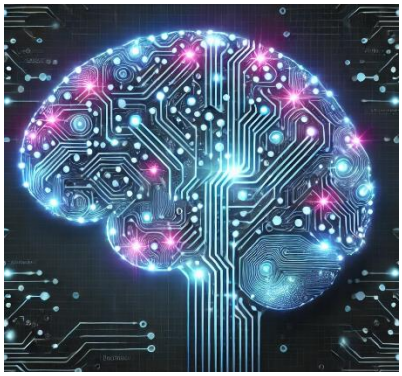
Date, location, time: February 7th, WALC 3121,1PM-4PM

Overview of Deep Learning

- Introduction to deep learning and its differences from traditional machine learning.
- Applications of deep learning in real-world scenarios.

Understanding Neural Networks

- The fundamental structure of a neuron and its role in a neural network.
- The concept of layers and fully connected architectures.
- Introduction to activation functions, including ReLU and sigmoid.



Training Neural Networks

- The forward propagation process and how data flows through a neural network.
- The role of the loss function in evaluating model performance.
- An overview of backpropagation for optimizing the network.
- Explanation of hyperparameters such as learning rate, epochs, and batch size.

Evaluating and Improving Models

- Techniques for evaluating model performance, including accuracy and the confusion matrix.
- Introduction to common challenges like overfitting and strategies to address them.

Hands-on Activities

- Building and training a fully connected neural network for handwritten digit classification using *Python*.
- Experimenting with hyperparameter adjustments and observing their effects.
- Analyzing the performance of a pre-trained model.

Conclusion and Discussion

- Recap of key concepts covered during the workshop and Q&A

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