CSIE5431 Applied Deep Learning

Lecture-1. Introduction
▶️ ADL 1.1: What is ML?
▶️ ADL 1.2: What is DL?
▶️ ADL 1.3: How to Apply?

Lecture-2-1. Neural Network Basics
Lecture-2-2. Backpropagation
▶️ ADL 2.1: How to Train a Model?
▶️ ADL 2.2: What is a Model?
▶️ ADL 2.3: What does the "Good" Function Mean?
▶️ ADL 2.4: How can we Pick the "Best" Function?
▶️ ADL 2.5: Backpropagation

Recitation-1. Dev Infra and Tooling
📖 PyTorch
📖 Debug

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▶️ ADL 3.2: Language Modeling
▶️ ADL 3.3: Recurrent Neural Network
▶️ ADL 3.4: RNN Applications

Lecture 4-1. Attention Mechanism
▶️ ADL 4.1: Attention Mechanism
▶️ ADL 4.2: Attention Applications

Lecture 4-2. Word Embeddings
▶️ ADL 4: Gating Mechanism
▶️ ADL 5.1: Word Embeddings - Word Representation Review
▶️ ADL 5.3: Word2Vec Training
▶️ ADL 5.4: Word2Vec Variants
▶️ ADL 5.5: GloVe
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Recitation-2. NLP Lifecycle
▶️ ADL TA Recitation: NLP Project Lifecycle
🧪 Colab

📝 Homework 1
▶️ ADL 2024 Fall Homework 1

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▶️ ADL 4.3: Self-Attention
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▶️ ADL 5.1: BPE (Byte-Pair Encoding) Tokenization

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▶️ ADL 5.2 BERT

Lecture 5-3. BERT Variants
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▶️ ADL 5.5: RoBERTa & SpanBERT
▶️ ADL 5.6: Multilingual BERT & XLM

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▶️ ADL 6.2: Decoding Algorithms
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HW2 Natural Language Generation
▶️ ADL 2024 Fall Homework 2

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▶️ ADL 7.2: Encoder-Decoder Pre-Training (BART, T5)
▶️ ADL 7.3: Issues of PLMs
▶️ ADL 7.4: (Hard) Prompt-Tuning, LM-BFF
▶️ ADL 7.5: (Soft) Prompt-Tuning (P-Tuning, Prefix Tuning)
▶️ ADL 7.6: Instruction Tuning
▶️ ADL 7.7: Prompting Paradigm

Recitation-4. LLM Basics & MoE
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Recitation-5. LLM LoRA Training
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Homework 3. Instruction Tuning (Classical Chinese)
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Final Project Announcement

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