Course Syllabus:

FRA501 Introduction to Natural Language Processing with Deep learning

Instructors: Paisit Khanarsa, Ph.D.

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Times: Every Friday, 13:30 – 16:30

Place: FB306, FIBO

Course description:

This course will provide an overview of Natural Language Processing (NLP) techniques that lie between traditional and deep learning methods. It will cover a range of standard NLP tasks, such as tokenization, language modeling, semantics, part-of-speech tagging, and parsing, and will examine both traditional and deep learning approaches to each topic. The second part of the course will focus on applications such as document classification, question answering, and chatbots. Many of the assignments for the course will be based on the Thai or English language. This course is not intended for those who are new to machine learning and does not cover the basics. It is recommended for fourth-year students who have already taken a machine learning course and third-year students who are interested in doing a senior project related to NLP.

Learning Outcomes

1. Can explain the fundamental concepts and techniques in natural language processing (NLP) and how they can be applied to various NLP tasks.
2. Can explain traditional and deep learning approaches to NLP and their relative strengths and weaknesses.
3. Can apply NLP techniques to real-world applications, such as document classification and question answering, using the Thai or English language.

Tools: Python, Tensorflow, Keras, ntlk, Scikit-learn, Colab

Important dates:

- Assignment 1 submitted: 24/02/2023
- Assignment 2 submitted: 10/03/2023
- Assignment 3 submitted: 24/03/2023
- Assignment 4 submitted: 07/04/2023
- Report and Presentation Slide submitted: 12/05/2023
- Final Project Presentation: 12/05/2023 and 19/05/2023

Grading (100%)

- Assignments (40%): 4 times
- Project (60%): Presentation 25%, Report 25%, and Q&A participation 10% (at least 5 Questions)

Course Calendar

Week	Date	Lead Lecturer	Topic	Activities
1	20/01/2023	Aj Paisit	Introduction to Natural Language Processing	Lecture
2	27/01/2023	Aj Paisit	Introduction to Tokenization	Lecture + lab
3	03/02/2023	Aj Paisit	PoS Tagging	Lecture + lab + HW1 assigned
4	10/02/2023	Aj Paisit	Language model	Lecture + lab
5	17/02/2023	Aj Paisit	Word Representation	Lecture + lab+ HW2 assigned
6*	24/02/2023	Aj Paisit	Break for exam 1/3	HW1 submitted

7	03/03/2023	Aj Paisit	Text Categorization	Lecture + lab
8	10/03/2023	Aj Paisit	Parsing	Lecture + lab+ HW3 assigned+ HW2 submitted
9	17/03/2023	Aj Paisit	Attention Mechanism & Machine Translation & QA	Lecture + lab
10	24/03/2023	Aj Paisit	Transformer	Lecture + lab+ HW4 assigned+ HW3 submitted
11	31/03/2023	Aj Paisit	Recent Research in NLP (Special Topic: ChatGPT) and Project or Paper Announcement	Lecture
12*	07/04/2023	Aj Paisit	Break for exam 2/3	HW4 submitted
13	14/04/2023	Aj Paisit	Break (Songkran holiday)	
14	21/04/2023	Aj Paisit	Progress	Presentation (5-10 min)
15	28/04/2023	Aj Paisit	Break & Project Consulting	Consult
16	05/05/2023	Aj Paisit	Break & Project Consulting	Consult
17	12/05/2023	Aj Paisit	Final (Project Presentation due)	Presentation (15-20 min) & Report Submitted
18	19/05/2023	Aj Paisit	Final (Project Presentation due)	Presentation (15-20 min)
19*	26/05/2023	Aj Paisit	Break for exam 3/3	

Additional knowledge

Dan Jurafsky and James H. Martin, Speech, and Language Processing (3rd ed draft),

https://web.stanford.edu/~jurafsky/slp3/

Zoom

https://kmutt-ac-th.zoom.us/j/93381964309?pwd=ZXc1WUQ4ZXBzbnByK1p1TVNOTERQZz09

Meeting ID: 933 8196 4309

Passcode: 139653