Course Overview:
Introduction to NLP
(Specifically Text Processing)

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Credit

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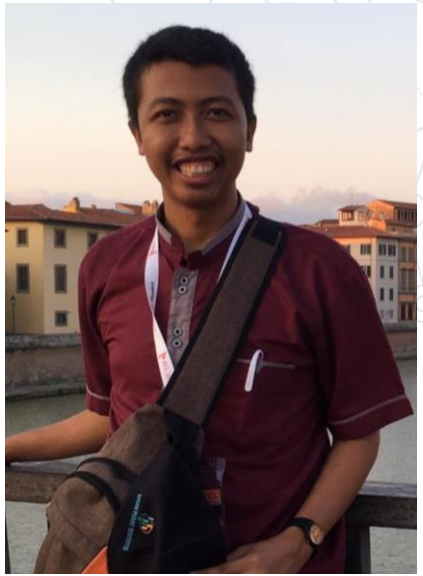
Video course

For those who can not attend the synchronous session, you can watch this video for this slide presentation: https://youtu.be/Vmjramv2-2Y

About Me



Full Name and Degree

Muhammad Okky Ibrohim, S.Mat., M.Kom.

Current Position(s)

- PhD student at Università degli Studi di Torino

Previous Relevant Professional Position(s)

- Lecturer and Researcher at Faculty of Computer Science, Universitas Indonesia
- NLP Researcher and Engineer at several start up (part time and project base)

Scholar Link(s)

- Google Scholar: https://scholar.google.com/citations?user=Rh2NplAAAAAJ&hl=en
- ORCID: https://orcid.org/0000-0002-6943-6553

Contact

If you want to ask and/or discuss an NLP project, or want to give advice on this slide/course, feel free to reach me via email (okkyibrohim@gmail.com) or LinkedIn (https://www.linkedin.com/in/muhammad-okky-ibrohim-5683a376/)

Outline

- Prerequisite
- Expected Result
- What you should not expect from this course
- How this course will be delivered
- NLP Research Field (Super Simplified)
- Course Material

Prerequisite

- Basic understanding of math
- Basic understanding of machine learning
- Basic understanding of Python programming
- Basic understanding of Notebook (Jupyter Notebook and/or Google Colab) operation

Expected Result

- Understanding what is NLP and its application
- Understanding fundamental NLP terms
- Understanding fundamental NLP pipeline
- Able to build several NLP task models using best practice way

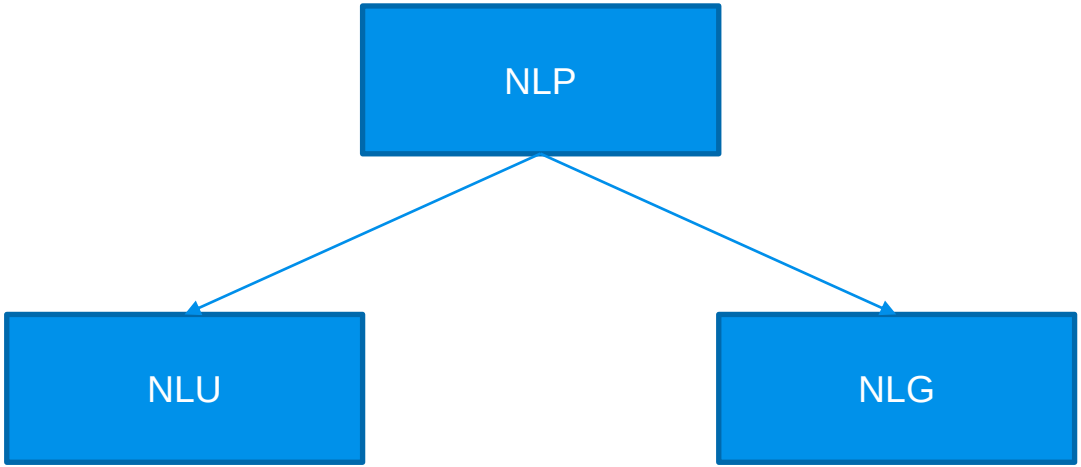
What you should not expect from this course

- Deep discussion about the math behind the NLP algorithms
- Advanced programming example to build NLP architecture from scratch
- Advanced programming example to modify NLP architecture

How this course will be delivered

- Theory
  Discussion of material introduction
- Practice
  Hands-on using Python in Notebook (Jupyter Notebook and/or Google Colab)

NLP Research Field (Super Simplified)



Course Material:
1. Dataset Collection and Building

1.1 Why we need to learn dataset collection and building?

1.2 How to collect dataset

1.3 Data annotation and how to validate it

Course Material:
2. Text Preprocessing

2.1 Why we need to preprocess our dataset?

2.2 Basic text preprocessing in text dataset

2.3 Hands-on: Basic text preprocessing using several NLP libraries (NLTK, Sastrawi, etc.)

Course Material:
3. Feature Extraction

3.1 What is feature extraction?

3.2 Basic text feature extraction in text dataset

3.3 Introduction to feature selection

3.4 Hands-on: Basic text feature extraction and selection (from scratch and using Scikit-Learn library)

Course Material:
4. Text Classification

4.1 Type of text classification

4.2 Text classification pipeline

4.3 Hands-on: Basic document classification using classic machine learning with basic feature extraction (using Scikit-Learn library)

4.4 Hands-on: Basic token classification using classic machine learning with basic feature extraction (using Scikit-Learn library)

4.5 Hands-on: Create text classification library

Course Material:
5. Word Embedding

5.1 Introduction to word embedding

5.2 Training word embedding

5.3 Using pretrained word embedding model from previous work

5.4 Hands-on: Training word embedding (using Gensim and/or other NLP libraries)

5.5 Hands-on: Text classification using pretrained word embedding (using Scikit-Learn and/or other NLP libraries)

5.6 Hands-on: Create text classification library using pretrained word embedding

Course Material:
6. RNN and Its Development

6.1 Introduction to RNN and its development

6.2 Hands-on: Text classification using RNN and/or its development with pretrained word embedding (using TensorFlow and Keras libraries)

6.3 Hands-on: Create text classification library using RNN and/or its development with pretrained word embedding

Course Material:
7. Machine Translation

7.1 Introduction to machine translation

7.2 Hands-on: Training machine translation using NMT and/or other architectures (using TensorFlow and Keras libraries)

7.3 Hands-on: Create machine translation library using NMT and/or other architectures

Course Material:
8. Transformer Model

8.1 Introduction to transformer model

8.2 Hands-on: Training text classification using pretrained transformer model (using Simple Transformers and/or other NLP libraries)

8.3 Hands-on: Create text classification library using pretrained transformer model

Course Material:
9. Case Study NLP

9.1 Aspect Based Sentiment Analysis

9.2 Introduction to Telegram Chatbot

9.3 Bonus: How to conduct research on NLP

Thank You!

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