

Kemal Maulana Kurniawan

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Education

PhD

University of Melbourne, Australia, 2019

MSc, Artificial Intelligence

University of Edinburgh, Scotland, United Kingdom, 2017

- Thesis: *Exploring Recurrent Neural Network Grammars for Parsing Low-Resource Languages*. Supervised by Frank Keller.
- Graduated with Distinction.
- Classes taken include machine learning and pattern recognition, probabilistic modeling and reasoning, and natural language understanding.

S.Kom., Computer Science (Bachelor's degree)

Universitas Indonesia, Depok, Indonesia, 2015

- Thesis: *Off-Topic Post Detection in Discussion Forums with Anomalous Text Detection Method*. Supervised by Hisar Maruli Manurung.
- Graduated *cum laude* with CGPA of 3.87 (highest is 4).
- Participated in ACM-ICPC Asia-Jakarta 2010 and 2012, Asia-Kuala Lumpur 2011, and Asia-Hanoi 2012.
- Classes taken include linear algebra, statistics and probability, numerical analysis, and natural language processing.

Young Scientist Exchange Program

Tokyo Institute of Technology, Tokyo, Japan, 2014

- Final report: *Predicting Within- and Inter-community Links in Networks*. Supervised by Tsuyoshi Murata.
- Presented the work in the 102nd conference of The Japanese Society for Artificial Intelligence.
- Wrote link prediction module for [NetworkX](#), a Python library for manipulating and analyzing networks and graphs.

Publications

KaWAT: A Word Analogy Task Dataset for Indonesian. Kemal Kurniawan. 2019. <http://arxiv.org/abs/1906.09912>.

IndoSum: A New Benchmark Dataset for Indonesian Text Summarization. Kemal Kurniawan and Samuel Louvan. In *2018 International Conference on Asian Language Processing (IALP)*. 2018. <https://doi.org/10.1109/IALP.2018.8629109>.

Toward a Standardized and More Accurate Indonesian Part-of-Speech Tagging. Kemal Kurniawan and Alham Fikri Aji. In *2018 International Conference on Asian Language Processing (IALP)*. 2018. <https://doi.org/10.1109/IALP.2018.8629109>.

Empirical Evaluation of Character-Based Model on Neural Named-Entity Recognition in Indonesian Conversational Texts. Kemal Kurniawan and Samuel Louvan. In *EMNLP Workshop on Noisy User-generated Text (W-NUT)*. 2018. <http://aclweb.org/anthology/W18-6112>.

Multi-Task Active Learning for Neural Semantic Role Labeling on Low Resource Conversational Corpus. Fariz Ikhwantri, Samuel Louvan, Kemal Kurniawan, Bagas Abisena, Valdi Rachman, Alfian Farizki Wicaksono, Rahmad Mahendra. In *ACL Workshop on Deep Learning Approaches for Low-Resource NLP (DeepLo)*. 2018. <http://aclweb.org/anthology/W18-3406>.

Employment

Research Scientist Oct 2017 - May 2019
PT YesBoss Group Indonesia (Kata.ai), Jakarta, Indonesia

- Experimented on out-of-vocabulary (OOV) handling for Indonesian entity recognition on conversational texts, achieved a model having roughly 80% micro-averaged F_1 score even when OOV rate is more than 90%, and published the work at EMNLP Workshop on Noisy User-generated Text (W-NUT) 2018.
- Implemented the entity recognition model as a service for production use.
- Experimented on extractive summarization for Indonesian news. Achieved a model having 65% of ROUGE-1, 60% of ROUGE-2, and 64% of ROUGE-L scores.
- Implemented the extractive summarizer as a Python library for production use.

Teaching Assistant Feb 2016 - Jun 2016
Faculty of Computer Science, Universitas Indonesia, Depok, Indonesia

- Led the teaching assistant team for the Functional Programming class and prepared materials for the bi-weekly tutorials.
- Prepared project assignment materials and assisted students in weekly tutorials for the Advanced Programming class.
- Conducted tutorials for the Statistics and Probability class.

Software Engineer Apr 2015 - Jan 2016
PT Dwi Cermat Indonesia (Cermati), Jakarta, Indonesia

- Implemented auto-generation of minified CSS and JavaScript, auto-revert of broken build, and auto-tagging of successful build in production branch using Gulp and Travis CI.
- Implemented Slack webhook integration for error logs, Ansible deployment logs, and Fail2Ban logs.
- Wrote test fixtures creation module with Faker.js, reducing boilerplate code of setting up testing data.
- Implemented captcha and IP blocker with Fail2Ban to protect servers from malicious attacks.

Software Engineer Jan 2015 - Apr 2015
PT Rekan Usaha Mikro Anda (RUMA), Jakarta, Indonesia

- Added SMS notification services to existing RUMA agents web management system.
- Developed balance deduction penalty system for RUMA agents that are dormant for a certain period of time.
- Fixed a critical bug in existing implementation regarding transaction report and agent transfer.
- Developed a simple middleware implementing RESTful API to be used for RUMA's Android application.

Junior Research Assistant, Intern 2013
National University of Singapore, Singapore

- Assisted a research in statistical machine translation under supervision of [Ng Hwee Tou](#) from NUS School of Computing.

- Implemented English-to-Chinese translation system prototype using Moses package based on the existing Chinese-to-English translation system.

Teaching Assistant 2011 - 2015

Faculty of Computer Science, Universitas Indonesia, Depok, Indonesia

- Was responsible for 15 - 20 students in Discrete Math, Linear Algebra, Statistics and Probability, and Data Structures and Algorithms classes.
- Conducted tutorials, assisted students in doing their assignments, and graded their works.

Talks

NLP for Chatbots 7 August 2018

Workshop on Machine Learning and Its Application, Telkom University, Bandung, Indonesia

Kata.ai's Best Practice for Machine Learning 4 July 2018

Tech in Asia - Product Development Conference, Menara Mandiri, Jakarta, Indonesia

Introduction to AI and NLP 16 December 2017

Facebook Developer Circle Surabaya: Facebook Goes to Campus, Surabaya, Indonesia

Predicting Within- and Inter-community Links in Networks 24 July 2014

102nd conference of The Japanese Society for Artificial Intelligence, Osaka, Japan

Projects

torchtext <https://github.com/pytorch/text>

Data loaders and abstractions for NLP using `PyTorch`. Contributed to this project by implementing a field class to contain characters of words. This field is essential to use character embedding with `torchtext` and `PyTorch`. Role: contributor.

pytorch-crf <https://github.com/kmkurn/pytorch-crf>

Conditional random field in `PyTorch`. I am the author of this project. Role: author.

id-nlp-resource <https://github.com/kmkurn/id-nlp-resource>

A list of Indonesian NLP resources. I gathered links to publicly available Indonesian NLP resources. As a low resource language, it can be hard to find NLP resources for Indonesian, which is why I created this repository. Role: author.

NetworkX <https://networkx.github.io>

A Python package for creation, manipulation, and study of networks and graphs. Contributed to this project by writing the link prediction module. Role: contributor.

Honors and Awards

Indonesia Endowment Fund for Education Scholarship 2016

2nd Runner-Up, Gemastik 5 Programming Competition (national-level) 2012

4th Runner-Up, ITB Programming Contest (national-level) 2011

Certifications

Data Analysis and Statistical Inference by Duke University on Coursera 2015

Statistical Learning by Stanford University on Stanford Online 2015

Skills

Natural languages Indonesian, English, Japanese, Javanese

Programming languages Python, Bash, LaTeX

Operating Systems macOS, Ubuntu, Arch Linux

Links

LinkedIn profile <https://id.linkedin.com/in/kemalmaulana>
Github profile <https://github.com/kmkurn>
Gitlab profile <https://gitlab.com/kmkurn>
Personal website <https://kkurniawan.com>