

ARYO PRADIPTA GEMA

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CURRENT RESEARCH INTERESTS

Primary : Biomedical NLP, Language Modelling, Neuro-symbolic AI
Secondary : Computational Biology, Argumentation Mining, Generative Adversarial Network

PUBLICATIONS

- **“Argument annotation and analysis using deep learning with attention mechanism in Bahasa Indonesia”**. *Journal of Big Data* (2020) [co-authored with Derwin Suhartono, Suhendro Winton, Theodorus David, Mohamad Ivan Fanany, Aniati Murni Arymurthy]
 - **“Sequence-to-Sequence Learning for Motion-aware Claim Generation”**. *International Journal of Computing (IJC)* (2020) [co-authored with Derwin Suhartono, Suhendro Winton, Theodorus David, Mohamad Ivan Fanany, Aniati Murni Arymurthy]
 - **“Attention-based Argumentation Mining”**. *International Journal of Computational Vision and Robotics* (2018) [co-authored with Derwin Suhartono, Suhendro Winton, Theodorus David, Mohamad Ivan Fanany, Aniati Murni Arymurthy]
 - **“Facial Attractiveness Classification using Deep Learning”**. *The 1st Indonesian Association for Pattern Recognition International Conference (INAPR)* (2018) [co-authored with Ricky Anderson, Suharjito Suharjito, Sani Muhamad Isa]
 - **“Hierarchical Attention Network with XGBoost for Recognizing Insufficiently Supported Arguments”**. *The 11th Multi-disciplinary International Workshop on Artificial Intelligence (MIWAI). Part of the Lecture Notes in Computer Science book series (LNCS, volume 10607)* (2017) [co-authored with Derwin Suhartono, Suhendro Winton, Theodorus David, Mohamad Ivan Fanany, Aniati Murni Arymurthy]
 - **“It Takes Two To Tango: Modification of Siamese Long Short Term Memory Network with Attention Mechanism in Recognizing Argumentative Relations in Persuasive Essay”**. *Procedia Computer Science Vol 116, pages 449-459, presented in 2nd International Conference on Computer Science and Computational Intelligence (ICCSCI)* (2017) [co-authored with Suhendro Winton, Theodorus David, Derwin Suhartono, Muhsin Shodiq, Wikaria Gazali]
 - **“Recurrent Neural Network (RNN) dan Gated Recurrent Unit (GRU)”**. *Articles of Binus University School of Computer Science* (2017). <https://socs.binus.ac.id/2017/02/13/rnn-dan-gru/> [co-authored with Derwin Suhartono]
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ONGOING PROJECTS

- **Deep Learning-based Personality Prediction from Bahasa Indonesia Text in Social Media** [with Noptovius Halimawan, Derwin Suhartono]
 - **Leveraging BERT with Summarization for Depression Detection on Social Media** [with David William, Derwin Suhartono]
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RESEARCH GRANTS

- **“Penelitian Produk Terapan (PPT) Binus 2017”**. (2017) [with Derwin Suhartono]

EDUCATION

UNIVERSITY OF EDINBURGH

Edinburgh, Scotland

- CDT in Biomedical AI

September 2022 -

Present

- A fully-funded four-year studentship with an integrated Masters by Research during the first year.
- Working with the Clinical NLP group co-lead by Dr. Beatrice Alex and Dr. Honghan Wu.

BINA NUSANTARA UNIVERSITY

Jakarta, Indonesia

- Bachelor of Science in Computer Science

September 2014 -

August 2018

- A-Accredited university for Computer Science Undergraduate Program in Indonesia.
- Concentration: Artificial Intelligence (**current GPA: 3.87/4.00**).
- Enrolled as a Deep Learning Junior Researcher in Bina Nusantara Enrichment Program.
- Student of Excellence honor (awarded to students with international and national achievements): 2014, 2015.
- Binusian Award (awarded to the most achieving graduate) 2018.
- Member of the Debating Club
 - Quarterfinalist in English as Foreign Language Category of United Asian Debating Championship 2015, Indonesia.
 - Champion in Novice Category of Indonesian Varsity English Debate 2015, Indonesia.
 - Semifinalist and 8th Best Speaker of Universitas Padjadjaran Debating Championship 2015.
 - 1st Runner Up and 3rd Best Speaker of Newbies Debating Championship 2014.
- Scholarship Mentor Program
 - Enrolled in a scholarship mentor program (only accepts students with a GPA of ≥ 3.50 out of 4.00).
 - Taught and monitored the progress of 10 mentees with a GPA of ≤ 2 for one semester.
 - 8 out of 10 mentees got A's in the subjects that I mentored.
- Voluntary Works
 - Initiated flood prevention awareness and mechanism using biopore absorption holes in a local community.

PROFESSIONAL EXPERIENCES

EPIGENE LABS (AI driven Oncology startup)

Paris, France

- Senior Data Scientist

October 2021 - Present

- Develop an internal **source-agnostic big data management end-to-end pipeline**.
- Maintain the quality of **more than 20 Machine Learning models** in production.
- Mentor Junior data scientist(s).
- Work with Head of Data to align Data Science R&D and product timeline.
- Initiated a regular **inter-departmental research workshop**.

- Data Scientist

October 2019 - September 2021

- Research and Implementation of **Language-Agnostic, Format-Agnostic, and Cancer-Agnostic Data Harmonization Pipeline** using hybrid **Machine Learning** techniques.
- Maintain the quality of **more than 20 Machine Learning models** in production.
- Supervise data collection, data labeling, and the formulation of ontology.
- Supervise Data Science internship projects on Tailored Performance Metrics and Continuous Learning.
- Contribute to an **open-sourced Computational Biology project** (<https://github.com/epigenelabs/pyComBat>).

- Directly worked under the C-level to align data science research, DevOps, and product timeline before the arrival of the Head of Data.

RIMINDER (Deep Learning based HR startup)

Paris, France

- Staff AI Research Scientist February 2019 - October 2019
 - **Supervised day-to-day operations** of the R&D team.
 - Directly worked with the C-level to align R&D and product timelines.
 - Improved in-house NER model by 20% F1 score, block tagger, and other predictive models by 5%.
 - **Double promotion after three months** of the trial period after successfully **improving in-house recommendation and NLU algorithms**.
- AI Research Scientist October 2018 - January 2019
 - Contributed to the research team to further improve profile-to-job **matching/recommendation** using deep learning algorithms.
 - Introduced novel approaches for profile-to-job matching, improved the model by a 10% ROC AUC score.
 - **Held ownership** of multiple of Riminder's most significant projects.
 - Primarily used Python and its libraries (Tensorflow, Pytorch, Keras, NLTK, Pandas, Scikit-learn, Numpy).

JULO (AI driven fin-tech startup)

Jakarta, Indonesia

- Data Scientist September 2017 - July 2018
 - Developed multiple machine learning solutions, including Automatic individual **credit performance grading, deep learning-based supervised and unsupervised text processing, and recognition**.
 - Worked collaboratively with the Head of Analytics.
 - Mentored junior data scientists and interns.
 - Primarily used Python and its libraries (Tensorflow, Pytorch, H2O, Keras, NLTK, Pandas, Scikit-learn, Numpy).

BINA NUSANTARA UNIVERSITY (private university)

Jakarta, Indonesia

- Junior Deep Learning Research Scientist March 2017 - July 2018
 - Researched cutting-edge **Deep Learning** and other **Machine Learning** techniques in the **Argumentation Mining** domain.
 - Published three papers in two different international conferences and a journal (**ICCCSCI 2017, MIWAI-SoDeLIA 2017, IJCVR 2018**) as of April 2018. Presented one of the papers in a national workshop (**INACL 2017**).
 - Best Presenter of ICCSCI 2017.
 - Appointed as the **lead researcher** for the team and managed fellow junior researchers' workload.
 - Primarily used Python and its libraries (Tensorflow, Pytorch, Keras, NLTK, Pandas, Scikit-learn, Numpy).

RE/MAX 2000 (real-estate company)

California, USA

- Freelance Web Developer July 2017 - September 2017
 - Developed 10 core modules for internal **Customer Relationship Management (CRM)** application.
 - Developed 8 core modules for **Image and Descriptive Text Verification** applications.
 - Developed 5 WordPress-based websites.

VOLANTECH (B2B multi-platform applications start-up)

Jakarta, Indonesia

- Senior Software Engineer August 2016 - July 2017
 - Managed and developed multiple high-value projects at the same time.
 - Worked closely with the C-level.
 - Research on **Deep Learning** techniques in conjunction with **Internet of Things** systems.
 - Formulated **competitive programming quizzes** for interview purposes and became the interviewer as well.
 - Primarily used Laravel (PHP), Meteor.js, MEAN stack, Google Firebase, and Python.

ANAKMUDA.NET (Indonesian youth forum)**Jakarta, Indonesia**

- Senior Full Stack Developer
 - First developer hired by the company.
 - Managed and developed multiple big modules of anakmuda.net.
 - Anakmuda.net is merged with Volantech.io
 - Primarily used MEAN stack, Socket.io .

February 2016 - August 2016

INVITED TALKS

BINA NUSANTARA UNIVERSITY**Jakarta, Indonesia**

- Building a Knowledge Base from Biomedical Literatures
- Augmenting Intelligence to Drug Discovery
- Augmenting Intelligence to Drug Discovery
- Introduction to Artificial Intelligence

July 2022

December 2021

April 2021

October 2020

SKILLS AND INTERESTS

- **Languages:** Indonesian – Native, English – Fluent, French – Basic
- **Skills:** Python, Golang, C++, Tensorflow, Pytorch, Scikit-Learn, spaCy, NLTK, Numpy, Scipy, Pandas, H2O, MySQL, PostgreSQL, MongoDB, Azure Cosmos DB
- **Other Interests:** Chess, Parliamentary Debate, Sports, Cooking