

# Arie Wahyu Wijayanto

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I am a **Doctor of Engineering** on Computer Science graduated from Tokyo Institute of Technology, Japan. My research lies in the field of deep learning and network science with an emphasis on massive scale graph analytics, graph protection, reinforcement learning, and efficient deep neural networks.

## Project Experience

- **CREST-Deep: Deep Neural Network Compression (2017 - 2019)**  
Funded by Japan Science and Technology Agency (JST). We aim to compress the size of Deep CNN to 1/100 using various techniques including network pruning, weight quantization and DEFLATE encoding. Currently, we managed to achieve up to 90% compression rate with no significant accuracy loss on AlexNet. Furthermore, using adversarial training, we are able to increase its robustness against adversarial attacks. Tools: Tensorflow, Caffe, Cleverhans
- **Massive Scale Deep Learning on Graph/Networks (2020 - Present)**  
Given a very large graph, such as social network, we aim to extract valuable information using deep learning architecture (such as CNN, GCN, and reinforcement learning) to support the evidence-based decision making. Tools: Google Collaboratory, Tensorflow, Keras, PyTorch

## Education

- 2016 - 2020 **Dr. Eng.** in Computer Science, Tokyo Institute of Technology, Japan  
Thesis Title: Developing Effective and Scalable Graph Protection Strategies for Large Social Networks
- 2013 - 2015 **M.T. (similar to M.Sc.)** in Computer Science, Bandung Institute of Technology, Indonesia (CumLaude)  
Thesis Title: Improvement of Fuzzy Geo-Demographic Clustering using Metaheuristic Optimization on Indonesia Population Census.
- 2004 - 2008 **S.ST. (similar to B.App.Sc.)** in Statistical Computation, Institute of Statistics, Indonesia  
Thesis Title: Design and Implementation of Data Analysis Expert System with Java Expert System Shell

## Selected Peer Reviewed Publications

- A.W. Wijayanto, T. Murata: Effective and scalable methods for graph protection strategies against epidemics on dynamic networks. *Applied Network Science* 04/2019. Springer
- A. W. Wijayanto, J. J. Choong, K. Madhawa, T. Murata: Toward robust compressed convolutional neural networks. The 6th IEEE International Conference on Big Data and Smart Computing (**IEEE BigComp 2019**). Kyoto-Japan.
- A. W. Wijayanto, A. Purwarianti, Le Hoang Son: Fuzzy geographically weighted clustering using artificial bee colony: An efficient geo-demographic analysis algorithm and applications to the analysis of crime behavior in population. *Applied Intelligence* 03/2016; 44(2). Springer
- ... view more at [bit.ly/arie-google-scholar](http://bit.ly/arie-google-scholar)

## Honors & Awards

- 2016-2020 Full Scholarship for PhD degree: Indonesia Endowment Fund for Education (LPDP)
- 2013-2015 Full Scholarship for Master degree: BPS Postgraduate Scholarship
- 2006 Finalist in Bina Nusantara Programming Contest for College Student (BNPCCS)

### Programming

Python, JavaScript,  
Matlab,PHP,  
C++

### Framework

Tensorflow, Caffe, Cleverhans  
NetworkX, GraphNN,  
Yii, Codelgniter

### Languages

English fluent (TOEIC 880)  
Japanese intermediate  
Indonesian native