

Sirakorn Lamyai · ศีระนคร ลำไย

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github.com/srakrn (github.com/srakrn for school works)

Education

Kasetsart University Bangkok, Thailand
Bachelor Degree in Computer Engineering · GPA: 3.36 (Second-class honour)

The Demonstration School of Nakhon Pathom Rajabhat University Nakhon Pathom
High School, Science-Math Programme · GPA: 3.23

Work Experiences

Adastra Thailand Bangkok, Thailand
Junior Data Engineer September 2020 - Current

PTT GC dEXSpark Data Science Training Programme Rayong, Thailand
Teaching Assistant (Outsourced) Q3-Q4 2019

- Assisted in the teaching of Data Science course for PTT Global Chemical company limited.
- Prepared materials, including supplementary talks, and Jupyter notebooks used in the classes.

Vidyasirimedhi Institute of Science and Technology (VISTEC) Rayong, Thailand
Research Assistant Intern May 2019 - July 2019

- Assisted in the research regarding the continuous Steady State Visual Evoked Potential (SSVEP) Brain-Controlled Interfaces (BCIs).
- Advising high school researcher team in the research of drowsiness detection with computer usage behaviour, with the ultimate goal to study measures of drowsiness in human behaviours.

Vidyasirimedhi Institute of Science and Technology (VISTEC) Rayong, Thailand
Research Assistant Intern May 2018 - July 2018

- Implemented an online system for a Steady State Visual Evoked Potential (SSVEP) Brain-Controlled Interface (BCI) with a statistic-based algorithm to classify brainwave.
- Assisted the laboratory principle investigator in preparing materials for a conference session.
- Provided a machine learning crash course for laboratory members without experiences.

Kasetsart University's Computers and Programming Course Bangkok, Thailand
Teaching Assistant During undergraduate course

- Teaching assistants in *Computers and Programming* (Fall 2017), *Data Structures and Algorithms II* (Winter 2018), *Social Skills and Career Development* (Fall 2019), and *Data Structures and Algorithms II* (Winter 2019)

Skills

Note: Asterisk indicates the pass of LinkedIn assessment on the given skill.

Programming languages	Bash*, C*, JavaScript*, PHP*, Python* (preferred)
Other languages	HTML*, JSON*, SQL
Web Frameworks	Django*, Laravel
Technical Skills	AWS*, Git*, Machine Learning*, Project Management, UNIX/Linux
Languages	Thai (native), English (CEFR C1-C2)

Language Test (TOEFL)

Score as of December 2019, Test appointment number 2367411191311416

Reading	27/30	Listening	30/30
Speaking	24/30	Writing	23/30

Senior Project

Cluster Method to Strengthen Adversarial Defence on Deep Learning Models

Advisors: Jittat Fakcharoenphol, Ph.D, Thanawin Rakthanmanon, Ph.D.

A well-trained accurate machine learning model may suffer from adversarial attacks, where small amount of perturbations were added to the input which causes significant changes in the model's output. Training robust models that withstand adversarial attacks, thus, becomes an important problem in machine learning. Adversarial training increases model robustness by including adversarial examples during the training. The quality of the model depends on the quality of the added examples.

This work considers two popular methods for adversarial example generation: the Fast Gradient Sign Method (FGSM) and the Projected Gradient Descent (PGD). While FSGM is very efficient, the generated examples are weak against stronger attacking methods, including the examples generated from the PGD. On the other hand, while PGD produces high quality examples, the procedure is time-consuming.

In this work, we propose a simple method based on clustering to find a trade-off between the two methods for adversarial example generation. The experimental result in an equally tolerating model to PGD attacks despite the much faster runtime.

Note: The source code of this project, which acts also as an adversarial attacking and training toolbox, is available at <https://github.com/srakrnxKU/adversarial-project>.

Achievements

Test of Practical Competency in ICT (TOPCIT)

Highest scorer in Thailand
2018

Twelfth National Linux Competition

Winner, Client Category
2012

Selected Works and Projects

SSVEP BCI Speller *Python (2018)*

srakrn.me/to/vistec-ssvep (Introduction video)

SSVEP BCI Speller is a Brain-Controlled Interface for users to control the desired device (for example, wheelchair) with the brainwave in visual cortex part of the brain, triggered by eye stimulation. The system implemented a Canonical Correlation Analysis (Lin et al., 2006) on the brain signal, and decides on which target the user is focusing on the screen. The eye stimulator syncs up with the brainwave reader (OpenBCI) and external devices through socket.

Is BTS Down? *Python, HTML, jQuery (2017)*

srakrn.me/utilities/bts

Is BTS Down? process tweets from the Twitter account of BTS SkyTrain - one of the most unreliable metro service provider - and determines whether the train service is disrupted or not. This project is my very first step into Natural Language Processing.

First step towards ML *Python (2018)*

github.com/srakrn/cpe-ml-intro

The repository contains slides and Jupyter notebooks used as the material of the talk "*Machine Learning: What Is? (A First Step to Practical Machine Learning)*" presented in the knowledge sharing event series organised by the Department of Computer Engineering, Kasetsart University.

PM2.5@CPE *Python (2019)*

aqi.srakrn.me

PM2.5@CPE is a real-time PM2.5 pollution level measurement from the ESP32-based sensor installed at the Department of Computer Engineering, Kasetsart University. The website is written with Flask on Python, and provides open data API for further use.

srakrnARSE *NodeJS, Socket.io (2015)*

arse.herokuapp.com

srakrnARSE stands for "**S**irakorn's **A**udience **R**esponse **S**ystem, **E**lectronically-controlled. It intends to be used as a low cost clicker for classroom participation, in which the system is firstly designed for the school's quiz competition. ARSE is based on Node.js and socket.io.

1DG Grader *Python (2016)*

(proprietary)

1DG is a terminal-based grader which I developed for Kasetsart University's *Computers and Programming (01204111)* course. The grader features code isolation (sandboxing), time control, and comes with lots of customised functions to suits the class needs.

204111 Notebooks *Python (2016)*

srakrn.me/to/111-notebook

Python Notebooks in this repository help students in Kasetsart University's *Computers and Programming* course understand Python concepts (like None and NoneType easier, and are considered as the class's supplementary materials.

Selected Research Papers

- Autthasan, P., Du, X., Arnin, J., **Lamyai, S.**, Perera, M., Itthipuripat, S., Yagi, T., Manoonpong, P. and Wilaiprasitporn, T. (2019). *A Single-Channel Consumer-Grade EEG Device for Brain-Computer Interface: Enhancing Detection of SSVEPs and Its Amplitude Modulations*. IEEE Sensors (Accepted). doi:10.1109/JSEN.2019.2958210.
- Natnithikarat, S., **Lamyai, S.**, Leelaarporn, P., Kunaseth, N., Autthasan, P., Wisutthisen, T. and Wilaiprasitporn, T. (2019). *Drowsiness Detection for Office-based Workload with Mouse and Keyboard Data*. The 12th Biomedical Engineering International Conference (BMEiCON2019).

Talks

Machine Learning: What Is? 2018

Knowledge Sharing Session, Department of Computer Engineering, Kasetsart University

This talk introduces the beginners to the fundamental concepts of Machine Learning, and its very simple applications using Python.

Fundamental Python for Data Science 2019

Knowledge Sharing Session, Department of Computer Engineering, Kasetsart University

This talk presents the fundamental Python toolkit for data analytics, and fundamental statistics through experimenting on toy datasets.

Deep Learning: Theories and Practices 2020

Knowledge Sharing Session, Department of Computer Engineering, Kasetsart University

This talk introduces fundamental concepts of Mathematics on Deep Learning, intended to deliver the understanding and appreciation toward mathematical implementations in Deep Learning models.

Information and Governmentality 2020

Panel host, with Arthit S. (The University of Edinburgh) and Patranun T. L. (Samitivej Hospital) as panellists.

This panel discussion presents the sociology and anthropology's perspectives on the concepts of nation and state, while pointing out the changes through the governance of Internet by state-level governments. The panel also points out the problems the government found in exerting their power on the virtual territory, while questioning the importance of doing such actions.

References

Theerawit Wilaiprasitporn

*Bio-Inspired Robotics & Neural Engineering (BRAIN) Laboratory,
School of Information Science and Technology,
Vidyasirimedhi Institute of Science and Technology, Rayong, Thailand*

Jittat Fakcharoenphol

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Thanawin Rakthanmanon

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