

Piyawat Lertvittayakumjorn

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Research Interests

- Natural Language Processing, Knowledge Graph and Semantic Web, Explainable AI, Machine Argumentation and Argument Mining, Interdisciplinary Data Mining

Education

- **Imperial College London** London, United Kingdom
PhD in Computing Oct 2017 - Present
 - PhD Project Title: Explainability and Knowledge Injection in Deep Natural Language Processing
 - PhD Project Advisers: Prof. Francesca Toni and Prof. Lucia Specia*MSc. in Computing (Machine Learning) with distinction* Oct 2015 - Sep 2016
 - MSc Project Title: Exploring and Forecasting Country Indicators using Big Data Approach
 - MSc Project Adviser: Dr. Chao Wu
- **Chulalongkorn University** Bangkok, Thailand
BEng. in Computer Engineering with first-class honors May 2011 - Jul 2015
 - GPAX: 3.98 (of 4.00 scales)
 - Senior Project Title: The System for Twitter Data Dispersion Analysis
 - Senior Project Advisers: Dr. Peerapon Vateekul and Asst. Prof. Pijitra Tsukamoto
- **Suankularb Wittayalai School** Bangkok, Thailand
Secondary school (Gifted Science Program) with GPAX 4.00 (of 4.00 scales) May 2005 - Mar 2011

Work Experiences

- **Department of Computing, Imperial College London** London, United Kingdom
Graduate Teaching Assistant Oct 2017 - Present
 - Autumn 2017: CO140-Logic
 - Spring 2018: CO233-Computational Techniques, CO245-Probability and Statistics
 - Autumn 2018: CO140-Logic, CO145-Mathematical Methods, CE2-07-Mathematics 2
 - Spring 2019: CO395-Introduction to Machine Learning
- **Ichise Laboratory, National Institute of Informatics (NII)** Tokyo, Japan
Research Intern Jan 2017 - Jul 2017
 - Adviser: Assoc. Prof. Ryutaro Ichise
 - Conducted the research project “Error correction in Knowledge Graph”. Devising an algorithm to resolve a kind of inconsistencies, called range violation errors, in DBpedia by searching for the appropriate type-consistent objects to replace the existing type-inconsistent objects.
- **Freelance (under Assoc. Prof. Atiwong Suchato’s supervision)** Bangkok, Thailand
Web Application Developer Jul 2015 - Sep 2015
 - Developed the prototype of web-based examination system (based on Drupal CMS) for The Sirindhorn Thai Language Institute, Chulalongkorn University.
- **Lab STICC, LUSSI Department, Telecom Bretagne** Brest, France
Research Intern Mar 2014 - May 2014
 - Advisers: Prof. Philippe Lenca and Julie Soulas

- Conducted the project “An Efficient Implementation of Algorithm for Outlier Detection in Data Stream”. Implemented and tested an algorithm, based on classification rules, that detects outlier in a data stream and then made improvements in appropriate parts of the algorithm.

Publications

- Zhang J*, **Lertvittayakumjorn P***, Guo Y. *Integrating Semantic Knowledge to Tackle Zero-shot Text Classification*. In 2019 Annual Conference of the North American Chapter of the Association for Computational Linguistics (NAACL), Minneapolis, USA; June 2019. * Contributed equally to this paper
- Wu C, Wang G, Zhu J, **Lertvittayakumjorn P**, Hu S, Tan C, Mi H, Xu Y, Xiao J. *Exploratory Analysis for Big Social Data Using Deep Network*. IEEE Access, volume 7, pp.21446-21453; 2019.
- **Lertvittayakumjorn P**, Kertkeidkachorn N, Ichise R. *Resolving Range Violations in DBpedia*. In 2017 7th Joint International Semantic Technology Conference (JIST), Gold Coast, Australia; Nov 2017.
- **Lertvittayakumjorn P**, Wu C, Liu Y, Mi H, Guo Y. *Exploratory Analysis of Big Social Data Using MIC/MINE Statistics*. In 2017 9th International Conference on Social Informatics (SocInfo), Oxford, United Kingdom; Sep 2017.
- **Lertvittayakumjorn P**, Nimmual P, Vateekul P, Tsukamoto P. *A System to Analyze Twitter Data for Social Science Study*. In 2015 7th International Conference on Information Technology and Electrical Engineering (ICITEE), Chiang Mai, Thailand; Oct 2015.

Selected Projects

- **Exploring and Forecasting Country Indicators using Big Data Approach** (May 2016 - Sep 2016)
 - Role: Graduate Student (Master Thesis)
 - Research Lab: Data Science Institute, Imperial College London, UK (collaborating with School of Public Affairs, Zhejiang University, China)
 - Supervised by: Dr. Chao Wu
 - Description: Explored the relationships between country indicators, collected from eight online sources, using non-linear correlation and data clustering. Then created forecasting models based on several machine learning techniques such as generalized linear model, support vector regression, and neural networks to forecast the values of target indicators and compared the results to other benchmarks.
- **VisualML (Visualization of Machine Learning)** (May 2015)
 - Role: Undergraduate Student (Class Project)
 - Class: Advanced Topics in Computer Engineering III (Web Programming)
 - Supervised by: Assoc. Prof. Dr. Atiwong Suchato
 - Description: Developed a web application called VisualML which helped a lecturer explain machine learning techniques. It allows a user to plot data points (with or without class) arbitrarily in 2D plane and let the application learn about the data using many kinds of technique such as decision tree, linear regression, k-means, and DBSCAN with user-defined essential parameters. After finishing each computation, the application visualized the results such as decision boundary, line of best fit, and clusters in the 2D plane together with result descriptions and its accuracy on a sidebar.
- **The System for Twitter Data Dispersion Analysis** (Aug 2014 - May 2015)
 - Role: Undergraduate Student (Senior Project)
 - Research Lab: Data Mining Research Group, MIND Lab, Computer Engineering Department, Chulalongkorn University, Thailand
 - Supervised by: Dr. Peerapon Vateekul and Asst. Prof. Pijitra Tsukamoto

- Description: [Part 1] Developed a web-based application system that enables journalism researchers to investigate a large number of tweets and find answers for their research questions with regard to the life cycles of tweets, spread directions of facts and rumors, behavior of interest groups, follow relationships within and between the groups, and so on. [Part 2] Employed three kinds of measure: connectivity, reciprocity, and mentioning, to analyze social network data with the aid of the created system.

Skills

- **Languages**
 - Thai (Native), English (Upper-Intermediate / Good User)
 - TOEFL Score 103 (of 120) – Tested in May 2016
 - IELTS overall 7.0 (of 9.0) – Tested in October 2014
 - TOEIC Score 840 (of 990) – Tested in September 2014
- **Programming**, familiar with the following languages and tools
 - Python, Java, C, C++
 - Jupyter Notebook, Eclipse, Sublime Texts, gcc and gcv
- **Data Analytics**, familiar with the following tools and technologies.
 - MySQL, MongoDB, MS SQL Server, SPARQL, Pentaho Data Integration (Kettle)
 - Tensorflow, Tensorlayer, Keras, Weka, Matlab, Scikit-Learn, Tableau
- **Web Development**, familiar with the following languages, libraries, frameworks, and tools
 - HTML5, CSS3, PHP, Javascript
 - JQuery, Bootstrap, Highcharts, FPDF, Laravel Framework
 - XAMPP, phpMyAdmin, vSphere, CMD/Terminal, Git, SourceTree

Awards, Grants & Honors

- **The Academic Excellence Award (MSc Computing Specialisms)** sponsored by The Department of Computing Corporate Partnership Programme, Imperial College London, 2016.
- **Anandamahidol Scholarship Recipient (Engineering Division)**, 2015–present.
- **Outstanding Youth**, “Love and Take Care” project under the Royal Patronage of HRH Princess Maha Chakri Sirindhorn, 2015.
- **10th Place** (from 109 teams), in ACM-ICPC Asia Thailand National On-site Programming Contest, 2014.
- **CP Best All-Around Student Award**, Computer Engineering Dept., Chulalongkorn University, 2014.
- **First place academic achievement** in ten undergraduate computing courses :
 - 2014: Formal Language and Automata Theory, Software Engineering
 - 2013: Database Management System Design, Distributed System Essentials, Programming Languages Principles, System Analysis and Design, Computer System Architectures, Computer Networks I
 - 2012: Digital Computer Logic Laboratory I
 - 2011: Computer Programming
- **Second place academic achievement** in three undergraduate computing courses :
 - 2013: Operating Systems and System Programs
 - 2012: Computer Engineering Mathematics, Introduction to Data Structures
- **Outstanding Undergraduate Student**, Chulalongkorn University, 2013.
- **Outstanding Debater**, Chulalongkorn University Freshmen Debate Competition, 2011.
- **First place of Thailand** in Mathematics O-NET Examination with perfect score, 2011.

Invited Talks [T] & Presentations [P]

- “Future Possibilities of Rumor Detection System”, Sukosol hotel, Bangkok, Thailand. (P: 13 Dec 2016)
- “The System for Twitter Data Dispersion Analysis”, Sertis Co., Ltd., Bangkok, Thailand. (T: 7 Dec 2016)
- “Exploring Engineering Education”, Suankularb Wittayalai School, Bangkok, Thailand. (T: 28 Aug 2012)

Professional Activities

- **Reviewer (Conferences)**
 - 2019 International Conference on Soft Computing & Machine Learning (SCML 2019)
 - 7th Thai Student Academic Conference (TSAC 2018)
 - 6th Thai Student Academic Conference (TSAC 2017)

Extra Curricular Activities

- **Local Student Volunteer**, International Conference on Knowledge Discovery & Data Mining (KDD 2018), London, UK, August 19-23, 2018.
- **Chula Engineering Ambassador**, Faculty of Engineering, Chulalongkorn University, 2013–2015.
Acted as a representative of Faculty of Engineering, Chulalongkorn University for special occasions and participated in rebranding the faculty to Chula Engineering under the slogan “Foundation toward Innovation”.
- **Student Personnel Counselor**, Dek-D’s Admission Fair Summer by www.dek-d.com, 2015.
Gave advice to high school students who were going to apply for undergraduate study about education and life of engineering students (more than 1,000 participants).
- **Director of Bitbyte Computer Camp#10**, Khonkaenwittayayon School, Thailand, 2013.
Designed and organized “Bitbyte Camp#10”, a student-organized camp to teach computer-related subjects to children in a rural area. The subjects which were taught in the 10th camp are Python-Pygame, Scratch and Google Applications.
- **Academic Staff**, Computer Engineering Department’s Orientation Event, 2013.
Introduced and guided computer engineering sophomore students about what we learn in this field and how to learn successfully and live happily in their 2nd year (more than 80 participants).
- **Main Staff of Engineering Debate Club**, Chulalongkorn University, 2012–2015.
Acted actively as a mentor of freshmen in the Debate Club of Faculty of Engineering which resulted in winning the first place in Chulalongkorn University Freshmen Debate Competition 2013.
- **Teaching Staff in “FE Camp”**, Faculty of Engineering, Chulalongkorn University, 2011.
Taught high school students Mathematics and Physics for preparing them to take the entrance exam in “FE camp” (Fundamental Engineering Camp student-organized) (more than 200 participants).

Last updated: 5th April 2019