

Wittawat Jitkrittum

GATSBY COMPUTATIONAL NEUROSCIENCE UNIT, UNIVERSITY COLLEGE LONDON

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Education

PhD Candidate in Machine Learning

London, UK

GATSBY UNIT, UNIVERSITY COLLEGE LONDON

2013/9-2017/9 (expected)

- **Thesis:** Kernel-Based Distribution Features for Inference and Statistical Tests
- **Supervisor:** Arthur Gretton
- Courseworks: Probabilistic and Unsupervised Learning, Functional Analysis (audit), Theoretical Neuroscience

M.Eng. in Computer Science

Tokyo, Japan

TOKYO INSTITUTE OF TECHNOLOGY

2010-2012

- **GPA:** 3.67/4.00 (honors)
- **Thesis:** Feature Selection via ℓ_1 -Penalized Squared-Loss Mutual Information
- **Supervisor:** Masashi Sugiyama
- Courseworks: Advanced Artificial Intelligence, Pattern Information Processing, Machine Learning, Advanced Data Analysis

B.Sc. in Computer Science

Thailand

SIRINDHORN INTERNATIONAL INSTITUTE OF TECHNOLOGY (SIIT), THAMMASAT UNIVERSITY

2005-2009

- **GPA:** 3.93/4.00 (honors)
- **Senior Project:** Question Answering System for Thai Wikipedia
- **Supervisor:** Thanaruk Theeramunkong
- Courseworks: Calculus, Linear Algebra, Discrete Mathematics, Engineering Statistics, Numerical Optimization, Artificial Intelligence, Natural Language Processing

Publications

Code for most of the projects is published at <https://github.com/wittawatj>.

SUBMITTED

- **Wittawat Jitkrittum**, Wenkai Xu, Zoltán Szabó, Kenji Fukumizu, and Arthur Gretton. A linear-time kernel goodness-of-fit test. *arXiv:1705.07673 [cs, stat]*, 2017a

JOURNAL ARTICLES

1. Kiyohito Iigaya, Aurelie Jolivald, **Wittawat Jitkrittum**, Iain Gilchrist, Peter Dayan, Elizabeth Paul, and Mike Mendl. Cognitive bias in ambiguity judgements: Using computational models to dissect the effects of mild mood manipulation in humans. *Plos One*, 2016
2. Makoto Yamada, **Wittawat Jitkrittum**, Leonid Sigal, Eric P. Xing, and Masashi Sugiyama. High-dimensional feature selection by feature-wise kernelized lasso. *Neural Computation*, 26(1), 2014
3. **Wittawat Jitkrittum**, Hirotaka Hachiya, and Masashi Sugiyama. Feature selection via ℓ_1 -penalized squared-loss mutual information. *IEICE Transactions*, 96-D(7):1513–1524, 2013

PEER-REVIEWED CONFERENCE PAPERS

1. **Wittawat Jitkrittum**, Zoltán Szabó, and Arthur Gretton. An adaptive test of independence with analytic kernel embeddings. In *ICML*, 2017b. (to appear)
2. **Wittawat Jitkrittum**, Zoltán Szabó, Kacper Chwialkowski, and Arthur Gretton. Interpretable distribution features with maximum testing power. In *NIPS*, 2016. (Oral presentation, 1.8%)
3. Mijung Park, **Wittawat Jitkrittum**, and Dino Sejdinovic. K2-ABC: Approximate Bayesian computation with kernel embeddings. In *AISTATS*, 2016. (*The first two authors contributed equally*. Oral presentation, 6.5%)
4. Mijung Park, **Wittawat Jitkrittum**, Ahmad Qamar, Zoltán Szabó, Lars Buesing, and Maneesh Sahani. Bayesian manifold learning: The locally linear latent variable model. In *NIPS*, 2015. (Acceptance: 21.8%)
5. **Wittawat Jitkrittum**, Arthur Gretton, Nicolas Heess, S. M. Ali Eslami, Balaji Lakshminarayanan, Dino Sejdinovic, and Zoltán Szabó. Kernel-based just-in-time learning for passing expectation propagation messages. In *UAI*, 2015
6. Gang Niu, **Wittawat Jitkrittum**, Bo Dai, Hirotaka Hachiya, and Masashi Sugiyama. Squared-loss mutual information regularization: A novel information-theoretic approach to semi-supervised learning. In *ICML*, 2013
7. Choochart Haruechaiyasak, Chatchawal Sangkeettrakarn, and **Wittawat Jitkrittum**. Managing offline educational web contents with search engine tools. In *International Conference on Asia-Pacific Digital Libraries*, 2007

WORKSHOP PAPERS

1. Vincent Adam, Joana Soldado-Magraner, **Wittawat Jitkrittum**, Heiko Strathmann, Balaji Lakshminarayanan, Alessandro Davide Ialongo, Gergo Bohner, Ben Dongsung Huh, Lea Goetz, Shaun Dowling, Julian Vlad Serban, and Matthieu Louis. Performance of synchrony and spectral-based features in early seizure detection: exploring feature combinations and effect of latency. *International Workshop on Seizure Prediction (IWSP) 2015: Epilepsy Mechanisms, Models, Prediction and Control*, 2015
2. **Wittawat Jitkrittum**, Choochart Haruechaiyasak, and Thanaruk Theeramunkong. QAST: question answering system for Thai wikipedia. In *Proceedings of the 2009 Workshop on Knowledge and Reasoning for Answering Questions, KRAQ '09*. ACL, 2009
3. Choochart Haruechaiyasak, **Wittawat Jitkrittum**, Chatchawal Sangkeettrakarn, and Chaianun Damrongrat. Implementing news article category browsing based on text categorization technique. In *Web Intelligence/IAT Workshops*, 2008

Experience

Graduate Course Teaching Assistant

University College London

COURSE: REPRODUCING KERNEL HILBERT SPACES IN MACHINE LEARNING

2016

- Duties include marking assignments, and answering course related questions.

Graduate Course Teaching Assistant

Gatsby Unit, UCL

COURSE: PROBABILISTIC AND UNSUPERVISED LEARNING

2014

- Duties include marking assignments, organizing weekly tutorials, and answering course related questions.

Lab Instructor

SIIT

BASIC C, JAVA, PROGRAMMING AND WEB DEVELOPMENT

2012-2013

- Prepared teaching materials and led hands-on programming sessions.
- Teaching evaluation: 4.8/5.0. Class sizes: 30-40.

Research Assistant

SIIT

RESEARCH ON TEXT RETRIEVAL WITH DR. THANARUK THEERAMUNKONG

2009-2010

- Collaboratively studied the use of association rule mining techniques for discovering relations among Thai news articles.
- Implemented a server-sided online application in Java to automatically find news relations as the news are crawled by a web crawler.

Undergraduate Course Teaching Assistant

SIIT

BASIC C, JAVA, AND DATABASE SYSTEMS.

2008-2010

- Supervise students in lab sessions on basic C, Java programming, and database systems.

Research Assistant

NECTEC, Thailand

RESEARCH ON THAI LANGUAGE PROCESSING WITH DR. CHOOCHART HARUECHAIYASAK

2007-2008

- At Human Language Technology Lab, National Electronics and Computer Technology Center (NECTEC), Thailand
- Empirically studied standard dimensionality reduction techniques and classification algorithms to increase the accuracy of Thai news article categorization.
- Designed and implemented a standalone search engine tool (in Java) that allows users to manage, archive and retrieve contents without an Internet connection. Thousands of CD-ROMs containing the tool were distributed to schools in remote areas.

Talks

- 2017/2 **Invited Talk**, An Adaptive Test of Independence with Analytic Kernel Embeddings. At the 2^{nd} Probabilistic Graphical Model Workshop, The Institute of Statistical Mathematics.
- 2016 **Oral Presentation**, Interpretable Distribution Features With Maximum Testing Power. *NIPS*
- 2016 **Oral Presentation**, K2-ABC: Approximate Bayesian Computation with Kernel Embeddings. *AISTATS*
- 2016/3 **Invited Talk**, Interpretable Distribution Features With Maximum Testing Power. At Sugiyama-Sato Lab, University of Tokyo.
- 2016/3 **Invited Talk**, Improving Approximate Bayesian Inference with Kernel Methods. At Probabilistic Graphical Model Workshop, The Institute of Statistical Mathematics.

Activities

- 2016/9 **Programming Tutor**, At Gatsby Unit boot camp for new PhD students. Co-organized a 5-day Python-Matlab programming course. Created teaching materials, designed short programming exercises (infer the trajectory of a simulated 2D robot) and tutored.
- 2016/3, 2017/3 **Visiting Researcher**, The Institute of Statistical Mathematics, Tokyo, Japan. Hosted by Prof. Kenji Fukumizu.
- 2016 **Publicity Chair**, AISTATS 2016.

- Since 2015 **Conference Reviewer**, ACML 2017, ICLR 2017, AISTATS 2017, NIPS 2015-2017, ICML 2016-2017, NIPS Workshop on Advances in Approximate Bayesian Inference 2015-2016.
- Since 2014 **Machine Learning Journal Club Organizer**, Gatsby Unit, UCL.
- 2014/9 **Workshop Volunteer**, Attended and helped organize UCL-Duke 2-day Workshop on Sensing and Analysis of High-Dimensional Data at UCL.
- 2014/8 **Data Mining Competition**, Participated in a Kaggle Competition on predicting seizures from intracranial EEG recordings. Final world rank of our team was 9 out of 205.

Awards & Scholarships

Gatsby Unit Studentship

Gatsby Unit, UCL

FULL SCHOLARSHIP FOR PHD STUDY

2013-present

- Full scholarship with stipend from the Gatsby Charitable Foundation for PhD study at Gatsby Unit, University College London. Awarded to 2-4 students per year.

Okazaki Kaheita Scholarship

Japan

FULL SCHOLARSHIP FOR MASTER STUDY

2010-2012

- Full scholarship with stipend for master study in Japan. Awarded to only one student per country once every three years.

National Software Contest Award

Thailand

SOFTWARE DEVELOPMENT COMPETITION AWARD

2010

- 2nd place at National Software Contest 2010 with the project “Thai Text Tokenization with a Binary Classifier” in “Thai Language Processing” category.
- Instead of commonly used expensive word sequence modelling techniques, we use a decision tree to classify each character into either “word beginning” or “not word beginning” based on character-level features generated from local context. This approach offers a very fast tokenizer while achieving a comparable accuracy (95.5%) to commonly used techniques such as the conditional random field.

National Software Contest Award

Thailand

SOFTWARE DEVELOPMENT COMPETITION AWARD

2009

- 2nd place at National Software Contest 2009 with the project “Question Answering System for Thai Wikipedia” in “Software for Scientific Development” category.
- Developed one of the first factoid Thai question answering systems using Thai Wikipedia as the knowledge base. Two types of information are used for answering questions: (1) structured information extracted and stored in the form of Resource Description Framework (RDF), and (2) unstructured texts stored in a search index for keyword-based search.

Silver Medal for High Academic Rank

Thailand

RANKED SECOND AMONG SENIOR-YEAR COMPUTER SCIENCE STUDENTS AT SIIT.

2009

Senior Project Financial Support

Thailand

RESEARCH FUNDING

2008-2009

- Financial support for the senior project titled “Question Answering System for Thai Wikipedia” From Young Scientist and Technologist Programme, National Science and Technology Development Agency.

Good Academic Performance Scholarship

Thailand

SCG TALENT SCHOLARSHIP, THE SIAM CEMENT GROUP

2008

- A competitive scholarship awarded to 3-5 senior-year students from top universities.

Scholarship for an Intensive Japanese Course

Thailand

THAI WACOAL PUBLIC COMPANY LIMITED

2004-2005

- One-year full scholarship for an intensive Japanese program at Waseda Education (Thailand).

Skills

TOOLS

- Most Experienced** Python, Matlab, Latex, Lyx
- Experienced** Java, C, PHP, HTML/CSS, MySQL, Javascript
- Some Experience** C# (Infer.NET), Theano, TensorFlow
- Others** Git, Linux, Basic Linux server administration, Arduino C

LANGUAGES

- Thai** Native
- English** Full professional proficiency. TOEFL iBT: 103/120 (2012)
- Japanese** Professional working proficiency. Japanese-Language Proficiency Test (JLPT) Level 1 (2006)
- Chinese** Elementary proficiency