

WITTAWAT JITKRITUM

















Machine Learning Research Scientist

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SUMMARY

Experienced machine learning research scientist with broad research interests in both theoretical (e.g., kernel methods, nonparametric statistical tests) and practical (e.g., deep learning, conditional GANs) sides of machine learning. First author of a NeurIPS 2017 best paper.

AWARDS AND HONORS

-  **ELLIS PhD Award**  2019
For outstanding research achievements during the PhD dissertation phase. Awarded to 6 recipients in 2016-2018.
-  **NeurIPS 2017 Best Paper Award**  12/2017
Awarded to 3 out of 3240 submissions to NeurIPS 2017. Media coverage as podcast by TWiML & AI (<https://goo.gl/3nkL7Q>).
-  **Gatsby Unit Studentship (PhD study)**  2013 – 2017
Full scholarship with stipend for PhD study. Awarded to 2-4 students globally per year.
-  **Okazaki Kaheita Scholarship (master study)**  2010 – 2012
Full scholarship with stipend for master study. Awarded to one Thai student once every three years.
-  **Second Prize at National Software Contest (NSC)**  2010
Project: Thai Text Tokenization with a Binary Classifier
Stacked decision trees to classify each character into either “word beginning” or “not word beginning” based on character-level features. Faster than sequence models. Accuracy: 95.5%.
-  **Second Prize at National Software Contest (NSC)**  2009
Project: Question Answering System for Thai Wikipedia
The first factoid Thai QA system based on Thai Wikipedia. Combine structured information extracted from tabular data, and unstructured texts stored in a search index.
-  **Honor Award from King Bhumibol Adulyadej**  2009
Awarded to one student with the highest GPA in the department.
-  **Thai Wacoal Scholarship**  2004 – 2005
Full scholarship for a one-year intensive Japanese program at Waseda Education (Thailand).

EVENT ORGANIZATION

-  **Southeast Asia Machine Learning School (SEA MLS)**  2019
Co-organizer of the first Southeast Asia Machine Learning School at University of Indonesia, 8-12 July 2019.
<https://www.sea-mls.com>.
-  **Machine Learning Research School (MLRS)**  2019
Co-organizer of the first Machine Learning Research School (MLRS) in Bangkok, Thailand, 4-11 August 2019.
<https://www.mlrs.ai>.
-  **Machine Learning Journal Club**  2014 – 2017
Organizer of the machine learning reading group at Gatsby Unit, UCL.

EDUCATION

PhD in Machine Learning

Gatsby Unit, University College London

 2013 – 2017 📍 London, UK

Thesis: Kernel-based distribution features for statistical tests and Bayesian inference

Supervisor: Arthur Gretton

MEng in Computer Science

Tokyo Institute of Technology

 2010 – 2012 📍 Tokyo, Japan

CGPA: 3.67/4.00 (*honors*)


Thesis: Feature selection via L_1 -penalized squared-loss mutual information

Supervisor: Masashi Sugiyama

BSc in Computer Science

Sirindhorn International Institute of Technology (SIIT), Thammasat University

 2005 – 2009 📍 Pathum Thani, Thailand

 **CGPA: 3.93/4.00**
first class honors, silver medal

Thesis: Question Answering System for Thai Wikipedia

Supervisor: Thanaruk Theeramunkong

SKILLS

Most experienced: Python, Matlab

Experienced: Pytorch, Java, C, PHP & MySQL, HTML/CSS/Javascript

Some experience: C# (Infer.NET), C

Languages: Thai (native), English (fluent), Japanese (intermediate), Chinese (elementary).

EXPERIENCE

Postdoctoral Researcher with Prof. Bernhard Schölkopf

Max Planck Institute for Intelligent Systems

📅 January 2018 – present 📍 Tübingen, Germany

Produced 1 NeurIPS paper, 1 ICML paper (long oral presentation), 1 paper in preparation for a journal submission, 2 code repositories, and 4 other papers under review.

Graduate Course Teaching Assistant

University College London

📅 2014, 2016 📍 London, UK

- Approximate Inference and Learning in Probabilistic Models
- Reproducing Kernel Hilbert Spaces for Machine Learning

Duties: give question-driven tutorials, grade homeworks.

Lab Instructor

Sirindhorn International Institute of Technology (SIIT)

📅 2012 – 2013 📍 Thailand

Prepared class materials and led hands-on programming sessions for undergraduate courses: basic programming in C, Java, PHP & MySQL.

Overall teaching evaluation: 4.8/5.0. Class size: 30-50.

INVITED TALKS

Recent Advances in Kernel Methods for Model Criticism

📅 12/2018 📍 Vidyasirimedhi Institute of Science and Technology (VISTEC)

Machine Learning Fundamentals I (tutorial)

📅 3/2018 📍 Vidyasirimedhi Institute of Science and Technology (VISTEC)

Introduction to Kernel Methods for Comparing Distributions

📅 3/2018 📍 Bangkok Machine Learning Meetup

A Linear-Time Kernel Goodness-of-Fit Test

📅 2/2018 📍 Workshop on Functional Inference and Machine Intelligence

📅 12/2017 📍 Department of Computer Science, University of Bristol

Code Demo: A Linear-Time Kernel Goodness-of-Fit Test

📅 12/2017 📍 MLTrain Workshop: Learn How to Code a Paper at NeurIPS 2017

An Adaptive Test of Independence with Analytic Kernel Embeddings

📅 2/2017 📍 Probabilistic Graphical Model Workshop II, The Institute of Statistical Mathematics

Interpretable Distribution Features With Maximum Testing Power

📅 4/2016 📍 Sugiyama-Sato Lab, University of Tokyo

Improving Approximate Bayesian Inference with Kernel Methods

📅 3/2016 📍 Probabilistic Graphical Model Workshop, The Institute of Statistical Mathematics

SERVICES

Publicity Chair for AISTATS 2016

Journal Reviewer

- Journal of Machine Learning Research
- Information and Inference

Conference/Workshop Reviewer

- NeurIPS 2015-2019
- ICML 2016-2019 (top 5% reviewer of ICML 2019)
- AISTATS 2017-2019
- Asian Conference on Machine Learning (ACML) 2017
- International Conference on Learning Representations (ICLR) 2017
- NeurIPS Workshop on Advances in Approximate Bayesian Inference 2015-2017.
- NeurIPS Workshop on Machine Learning Open Source Software 2018

Selection Committee (2019)

- The Max Planck ETH Center for Learning Systems (CLS) PhD fellowship program.
- International Max Planck Research School for Intelligent Systems (IMPRS-IS) PhD program.
- Cambridge-Tübingen Machine Learning PhD Program.

NOTABLE PROJECTS

Kaggle: Seizure Prediction 📅 6/2014

Collaborative effort with students at Gatsby Unit, UCL to compete in a Kaggle competition to detect seizures in intracranial EEG recordings. Final rank: 9/205 (10 submissions). http://bit.ly/kaggle_seizure.

Thai News Relation Discovery 📅 2013

Research Assistant at SIIT

Developed a server-sided system (in Java) which collects and processes online Thai news in real-time and discovers their relations using association rule mining techniques.

Portable Search Engine 📅 2007 – 2008

Outsourced programmer at National Electronics and Computer Technology Center

Designed and developed a standalone search engine (in Java) that allows the user to manage, archive and retrieve educational contents without the Internet. Thousands of CD-ROMs containing the tool were distributed to schools in Thailand in remote areas.

SELECTED PUBLICATIONS

Complete list of publications at <http://wittawat.com>. Released source code at <https://github.com/wittawatj>.

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](#)^{*}, Patsorn Sangkloy^{*}, Muhammad Waleed Gondal, Amit Raj, James Hays, and Bernhard Schölkopf. Kernel mean matching for content addressability of GANs. In *ICML*, 2019. (^{*}Equal contribution. **Long oral presentation**.)
2. [Wittawat Jitkrittum](#), Heishiro Kanagawa, Patsorn Sangkloy, James Hays, Bernhard Schölkopf, and Arthur Gretton. Informative features for model comparison. In *NeurIPS*, 2018
3. [Wittawat Jitkrittum](#), Wenkai Xu, Zoltán Szabó, Kenji Fukumizu, and Arthur Gretton. A linear-time kernel goodness-of-fit test. In *NeurIPS*, 2017. (**Best paper award**, 3 out of 3240 submissions)
4. [Wittawat Jitkrittum](#), Zoltán Szabó, and Arthur Gretton. An adaptive test of independence with analytic kernel embeddings. In *ICML*, 2017
5. [Wittawat Jitkrittum](#), Zoltán Szabó, Kacper Chwialkowski, and Arthur Gretton. Interpretable distribution features with maximum testing power. In *NeurIPS*, 2016. (**Oral presentation**, 1.8%)
6. Mijung Park^{*}, [Wittawat Jitkrittum](#)^{*}, and Dino Sejdinovic. K2-ABC: Approximate Bayesian computation with kernel embeddings. In *AISTATS*, 2016. (^{*}Equal contribution. **Oral presentation**, 6.5%)
7. Mijung Park, [Wittawat Jitkrittum](#), Ahmad Qamar, Zoltán Szabó, Lars Buesing, and Maneesh Sahani. Bayesian manifold learning: The locally linear latent variable model. In *NeurIPS*, 2015. (Acceptance rate: 21.8%)
8. [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
9. 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

Ongoing Projects

1. Jen Ning Lim, Makoto Yamada, Bernhard Schölkopf, and [Wittawat Jitkrittum](#). Kernel Stein tests for multiple model comparison. 2019. (under review)
2. Heishiro Kanagawa, [Wittawat Jitkrittum](#), Lester Mackey, Kenji Fukumizu, and Arthur Gretton. A kernel Stein test for comparing latent variable models. *ArXiv*, art. arXiv:1907.00586, July 2019. (under review)
3. Arash Mehrjou, [Wittawat Jitkrittum](#), Bernhard Schölkopf, and Krikamol Muandet. Witnessing adversarial training in reproducing kernel hilbert spaces. *ArXiv*, art. arXiv:1901.09206, January 2019. (under review)
4. Damien Garreau, [Wittawat Jitkrittum](#), and Motonobu Kanagawa. Large sample analysis of the median heuristic. *ArXiv*, October 2018. (In preparation for journal submission)
5. Song Liu, Takafumi Kanamori, [Wittawat Jitkrittum](#), and Yu Chen. Fisher Efficient Inference of Intractable Models. *arXiv e-prints*, art. arXiv:1805.07454, May 2018. (under review)

Workshop Paper

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

(CV update: 13/09/2019)