

Wittawat Jitkrittum

Research Scientist
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Education

PhD in Machine Learning 📅 2013 – 2017

Gatsby Unit, University College London (UCL)

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

Supervisor: Arthur Gretton

MEng in Computer Science 📅 2010 – 2012

Tokyo Institute of Technology

CGPA: 3.67/4.00 (*honors*)

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

Supervisor: Masashi Sugiyama

BSc in Computer Science 📅 2005 – 2009

Sirindhorn International Institute of Technology (SIIT), Thammasat University

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

Thesis: Question Answering System for Thai Wikipedia

Supervisor: Thanaruk Theeramunkong

Experience

Research Scientist, Google Research 📅 5/2020 –

Research: large-scale machine learning with class imbalance, and privacy-preserving machine learning.

Postdoctoral Researcher 📅 1/2018 – 4/2020

Postdoc with Prof. Bernhard Schölkopf at Max Planck Institute for Intelligent Systems, Tübingen, Germany.

Research: model comparison, statistical testing, kernel methods.

Graduate Course Teaching Assistant 📅 2014, 2016

- Approximate Inference and Learning in Probabilistic Models
 - Reproducing Kernel Hilbert Spaces for Machine Learning
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Programming Lab Instructor at SIIT 📅 2012 – 2013

Prepared class materials and led hands-on programming sessions on basic programming in C, Java, PHP & MySQL. Overall teaching evaluation: 4.8/5.0. Class size: 30-50.

Awards and Honors



🎓 **European Laboratory for Learning and Intelligent Systems (ELLIS) PhD Award** 📅 2019
For outstanding research achievements during the PhD dissertation phase. Awarded to 6 recipients in 2016-2018.
<https://ellis.eu/news/ellis-phd-award>.

📄 **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 at Gatsby Unit, University College London. Awarded to 2-4 students globally per year.



🎓 **Okazaki Kaheita Scholarship (master's degree)** 📅 2010 – 2012
Full scholarship with stipend for master's degree study. Awarded to one Thai student once every 2-3 years.
<https://okazakizaidan.or.jp>.

🏆 **Second Prize at National Software Contest (NSC), Thailand** 📅 2010
Project: Thai Text Tokenization with a Binary Classifier
Designed stacked decision trees to classify each character into either “word beginning” or “not word beginning” based on character-level features. Faster than sequence models used at the time. Accuracy: 95.5%.



 **Second Prize at National Software Contest (NSC), Thailand**  2009
Project: [Question Answering System for Thai Wikipedia](#)
The first factoid Thai Q&A system based on Thai Wikipedia. Combines structured information extracted from tabular data (Wikipedia's infoboxes), and unstructured texts stored in a search index.



 **Undergraduate Awards**  2009



- Silver Medal from SIIT for high academic rank.
- Honor Award from King Bhumibol Adulyadej. Highest GPA (on core subjects) in the department.

 **Thai Wacoal Scholarship**  2004 – 2005
Full scholarship for a one-year intensive Japanese language program at Waseda Education (Thailand).


Event Organization


 **Machine Learning Summer School (MLSS)**  2020
Co-organizer of the virtual Machine Learning Summer School (MLSS), 28 June - 10 July 2020, involving 200 selected participants from all continents, 17 expert invited speakers, and (virtual) social programs.
<http://mlss.tuebingen.mpg.de/2020>.


 **Southeast Asia Machine Learning School (SeaMLS)**  2019
Co-organizer of the first Southeast Asia Machine Learning School at University of Indonesia, 8-12 July 2019.
<https://www.seamls.ai>.

 **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>.

Notable Past 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, Thailand.
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, Thailand.
Co-designed and developed a standalone search engine (in Java) that allows users 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.

Skills </>

Most experienced: Python, Tensorflow, Linux, \LaTeX , Matlab, Git

Experienced: Pytorch, Java, PHP, SQL, HTML/CSS/Javascript, C# (Infer.NET)

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

Invited Talks

- 🗨️ **Interpretable Comparison of Generative Models**
 - 📍 Deep Learning and Artificial Intelligence Summer School 2021, Thailand (virtual talk) 📅 5/2021
 - 📍 IBM Research (virtual talk) 📅 12/2020
 - 📍 EURECOM, France (virtual talk) 📅 11/2020

- 🗨️ **NeurIPS 2019 Tutorial: Interpretable Comparison of Distributions and Models**
 - 📍 NeurIPS 2019, Vancouver, Canada. Audience size: 3000+. 📅 12/2019

- 🗨️ **Recent Advances in Kernel Methods for Model Criticism**
 - 📍 Vidyasirimedhi Institute of Science and Technology (VISTEC), Thailand 📅 12/2018

- 🗨️ **Machine Learning Fundamentals I (tutorial)**
 - 📍 Vidyasirimedhi Institute of Science and Technology (VISTEC), Thailand 📅 3/2018

- 🗨️ **Introduction to Kernel Methods for Comparing Distributions**
 - 📍 Bangkok Machine Learning Meetup 📅 3/2018

- 🗨️ **A Linear-Time Kernel Goodness-of-Fit Test (NeurIPS 2017 Best Paper)**
 - 📍 Workshop on Functional Inference and Machine Intelligence, Japan 📅 2/2018
 - 📍 Department of Computer Science, University of Bristol 📅 12/2017

- 🗨️ **Code Demo: A Linear-Time Kernel Goodness-of-Fit Test**
 - 📍 MLTrain Workshop: Learn How to Code a Paper at NeurIPS 2017 📅 12/2017

- 🗨️ **An Adaptive Test of Independence with Analytic Kernel Embeddings**
 - 📍 Probabilistic Graphical Model Workshop II, The Institute of Statistical Mathematics, Japan 📅 2/2017

- 🗨️ **Interpretable Distribution Features With Maximum Testing Power**
 - 📍 Sugiyama-Sato Lab, University of Tokyo 📅 4/2016

- 🗨️ **Improving Approximate Bayesian Inference with Kernel Methods**
 - 📍 Probabilistic Graphical Model Workshop, The Institute of Statistical Mathematics, Japan 📅 3/2016

Community Service

- **Workflow Chair** for AISTATS 2021
- **Publicity Chair** for AISTATS 2016
- **Journal Reviewer**
 - Journal of Machine Learning Research
 - Information and Inference
- **Conference/Workshop Reviewer**
 - UAI 2021 emergency reviewer
 - NeurIPS 2015-2020. Top 10% reviewer of NeurIPS 2020.
 - ICML 2016-2021. 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
- **Area Chair** for ACML 2020-2021

- **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.

Selected Recent Publications

For the full list of publications, please visit <http://wittawat.com>.

Journal Articles

1. Iigaya, K., Jolivald, A., [Jitkrittum](#), W., Gilchrist, I., Dayan, P., Paul, E., & Mendl, M. (2016). Cognitive bias in ambiguity judgements: Using computational models to dissect the effects of mild mood manipulation in humans. *Plos One*
2. Yamada, M., [Jitkrittum](#), W., Sigal, L., Xing, E. P., & Sugiyama, M. (2014). High-dimensional feature selection by feature-wise kernelized lasso. *Neural Computation*, 26(1)
3. [Jitkrittum](#), W., Hachiya, H., & Sugiyama, M. (2013). Feature selection via ℓ_1 -penalized squared-loss mutual information. *IEICE Transactions, 96-D(7)*, 1513–1524

Top-Tier Conference Papers

1. Zhu, J.-J., [Jitkrittum](#), W., Diehl, M., & Schölkopf, B. (2021). Kernel distributionally robust optimization: Generalized duality theorem and stochastic approximation. *AISTATS*, 130, 280–288
2. Lim, J. N., Yamada, M., [Jitkrittum](#), W., Terada, Y., Matsui, S., & Shimodaira, H. (2020). More powerful selective kernel tests for feature selection. *AISTATS*, 108, 820–830
3. Liu, S., Kanamori, T., [Jitkrittum](#), W., & Chen, Y. (2019). Fisher efficient inference of intractable models. *NeurIPS* (pp. 8790–8800). Curran Associates, Inc.
4. [Jitkrittum](#), W., Kanagawa, H., & Schölkopf, B. (2020). Testing goodness of fit of conditional density models with kernels. *UAI*
5. Muandet, K., [Jitkrittum](#), W., & Kübler, J. (2020). Kernel conditional moment test via maximum moment restriction. *UAI*
6. Kübler, J. M., [Jitkrittum](#), W., Schölkopf, B., & Muandet, K. (2020). Learning kernel tests without data splitting. *NeurIPS*
7. Lim, J. N., Yamada, M., Schölkopf, B., & [Jitkrittum](#), W. (2019). Kernel Stein tests for multiple model comparison. *NeurIPS*, 2240–2250
8. [Jitkrittum](#)*, W., Sangkloy*, P., Gondal, M. W., Raj, A., Hays, J., & Schölkopf, B. (2019). Kernel mean matching for content addressability of GANs [*Equal contribution. *Long oral presentation.*]. *ICML*
9. [Jitkrittum](#), W., Kanagawa, H., Sangkloy, P., Hays, J., Schölkopf, B., & Gretton, A. (2018). Informative features for model comparison. *NeurIPS*
10. [Jitkrittum](#), W., Xu, W., Szabó, Z., Fukumizu, K., & Gretton, A. (2017). A linear-time kernel goodness-of-fit test [**Best paper award**, 3 out of 3240 submissions]. *NeurIPS*
11. [Jitkrittum](#), W., Szabó, Z., & Gretton, A. (2017). An adaptive test of independence with analytic kernel embeddings. *ICML*
12. [Jitkrittum](#), W., Szabó, Z., Chwialkowski, K., & Gretton, A. (2016). Interpretable distribution features with maximum testing power [(**Oral presentation**, 1.8%)]. *NeurIPS*
13. Park*, M., [Jitkrittum](#)*, W., & Sejdinovic, D. (2016). K2-ABC: Approximate Bayesian computation with kernel embeddings [*Equal contribution. *Oral presentation*, 6.5%]. *AISTATS*
14. [Jitkrittum](#), W., Gretton, A., Heess, N., Eslami, S. M. A., Lakshminarayanan, B., Sejdinovic, D., & Szabó, Z. (2015). Kernel-based just-in-time learning for passing expectation propagation messages. *UAI*