# KRIKAMOL **MUANDET**

Max Planck Institute for Intelligent Systems • Max Planck Ring 4 • 72076 Tübingen• Germany
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## Objective

Seeking a stimulating environment that helps me grow intellectually and make lasting contributions to society.

## Work Experience

**Max Planck Institute for Intelligent Systems** — *Tübingen, Germany*
*Research Group Leader.* — *01.04.2018 – Present*
RESPONSIBILITIES: To craft and pursue an independent research program, and to supervised interns and PhD students.

**Department of Mathematics, Faculty of Science, Mahidol University** — *Bangkok, Thailand*
*Lecturer in Mathematics.* — *04.01.2016 – 31.12.2017*
RESPONSIBILITIES: To teach at undergraduate and graduate level, to carry out research, and to supervise students' research activities, among others.

**Max Planck Institute for Intelligent Systems** — *Tübingen, Germany*
*Research Scientist.* — *01.06.2015 – 31.12.2015*
RESPONSIBILITIES: To conduct research.

**Sirindhorn International Institute of Technology** — *Pathumthani, Thailand*
*Teaching Assistant*, ITS100 Introduction to Programming in C. — *2010*
RESPONSIBILITIES: To assist the instructor in the programming laboratory.

**Sirindhorn International Institute of Technology** — *Pathumthani, Thailand*
*Teaching Assistant*, ITS050 Introduction to Programming in C. — *2008*
RESPONSIBILITIES: To assist the instructor in the programming laboratory.

## Education

MAX PLANCK INSTITUTE FOR INTELLIGENT SYSTEMS — *Tübingen, Germany*
**Ph.D. in Machine Learning (Summa Cum Laude)** — *04.04.2011 – 31.05.2015*
SUPERVISOR: Prof. Bernhard Schölkopf
THESIS : "*From Point to Probability Measures : Statistical Learning on Distributions with Kernel Mean Embedding*"
DATE OF EXAMINATION: 30.09.2015
DATE OF AWARD: 21.12.2015 (**University of Tübingen**)

UNIVERSITY COLLEGE LONDON — *London, United Kingdom*
**M.Sc. in Machine Learning (Distinction)** — *10.2009 – 10.2010*
MASTER THESIS: "*Infinite Independent Subspace Analysis*"
THESIS SUPERVISOR: Prof. Yee Whye Teh
M.SC. TUTOR: Prof. John Shawe-Taylor
DATE OF AWARD: 01.11.2010

SIRINDHORN INTERNATIONAL INSTITUTE OF TECHNOLOGY — *Pathumthani, Thailand*
**B.Sc. in Computer Science (First Class Honor)** — *22.03.2005 – 26.03.2009*
SCHOLARSHIP: Young Scientist and Technologist Programme (YSTP)
THESIS: "*Robust Graph Hyperparameter Learning for Graph-based SSL*"
"*Query Selection via Weighted Entropy for Graph-based SSL*"
Rank: 1st out of 441 students | GPA: 3.97/4.00
DATE OF AWARD: 26.03.2009

MAHIDOL WITTAYANUSORN SCHOOL (PUBLIC ORGANISATION) — *Nakornpathom, Thailand*
SCHOLARSHIP: Mahidol Wittayanusorn Scholarship — *03.2002 – 03.2005*
PROJECT: "*Moving Objects Detection in Video System*"
GPA: 3.91/4.00

PRINCESS CHULABHORN'S COLLEGE — *Satun, Thailand*
GPA: 3.90/4.00 — *03.1999 – 03.2002*

## Research Interests

The ultimate goal of my research is to create and understand **intelligent systems for consequential decision making** using techniques from machine learning, statistical learning theory, and economics. The current line of research revolves around

- Kernel methods and reproducing kernel Hilbert space (RKHS) in machine learning
- Hilbert space embedding of distributions
- Bayesian inference and nonparametric models
- Multi-task, transfer, and meta learning
- Off-line policy learning and evaluation
- Algorithmic and strategic decision making
- Counterfactual prediction
- Machine learning in econometrics
- Unmeasured confounders in causal inference
- A synergy between kernel methods and deep neural networks

## Research Grants and Funding

**Grassroots project (No. M10334)** : 17,000 Euro — 2019
RESEARCH TOPIC: Kernel methods meet deep learning
FUNDING AGENCY: *Max Planck Institute for Intelligent Systems*
OUTPUT: 1 publication at NeurIPS2020 and 1 publication at 3DV2020

**Research Grant for New Scholar (MRG Grant No. 6080206)** : 592,000 THB — 2017
RESEARCH TOPIC: Counterfactual mean embedding with applications in causal inference
FUNDING AGENCY: *The Thailand Research Fund (TRF), Thailand*
OUTPUT: 1 publication at JMLR.

**Research Supplement Grant** : 200,000 THB — 2016
FUNDING AGENCY: *Faculty of Science, Mahidol University, Thailand*

## List of Publications

### Journal Articles

*Journal ranking*: Q1=Highest 25%, Q2=Top 50%–25%, Q3=Top 75%–50%, Q4=Bottom 25%

- (Q1) K. Muandet, M. Kanagawa, S. Saengkyongam, and S. Marukatat, **Counterfactual Mean Embedding**, *Journal of Machine Learning Research (JMLR)*, Accepted, 2020.
- (Q1) S. Klus, I. Schuster, K. Muandet, **Eigendecomposition of Transfer Operators in Reproducing Kernel Hilbert Spaces**, *Journal of Nonlinear Science*, 30, 283–315, 2020.
- (Q1) J. Kübler, K. Muandet, B. Schölkopf, **Quantum Mean Embedding of Probability Distributions**, *Physical Review Research*, 1. 10.1103/PhysRevResearch.1.033159, 2019.
- (Q1) N. Shah, B. Tabibian, K. Muandet, I. Guyon, U. von Luxberg. **Design and Analysis of NIPS 2016 Review Process**, *Journal of Machine Learning Research (JMLR)*, 19(49):1–34, 2018.
- (Q1) I. Tolstikhin, B. Sriperumbudur, and K. Muandet, **Minimax Estimation of Kernel Mean Embeddings**, Journal of Machine Learning Research (JMLR), 18(86):1–47, 2017.
- (Q1) K. Muandet, B. Sriperumbudur, K. Fukumizu, A. Gretton, and B. Schölkopf, **Kernel Mean Shrinkage Estimators**, *Journal of Machine Learning Research (JMLR)*, 17(48):1–41, 2016.
- (Q1) B. Schölkopf, K. Muandet, K. Fukumizu, and J. Peters, **Computing Functions of Random Variables via Reproducing Kernel Hilbert Space Representations**, *Statistics and Computing*, Volume 25, Issue 4, pp. 755–766, 2015.

- (Q1) D. Lopez-Paz, K. Muandet, and B. Recht, **Randomized Causation Coefficient**, *Journal of Machine Learning Research (JMLR)*, 16(Dec) : 2901–2907, 2015.

## Books

- K. Muandet, K. Fukumizu, B. Sriperumbudur, and B. Schölkopf, **Kernel Mean Embedding of Distributions: A Review and Beyond**, *Foundations and Trends® in Machine Learning Series*, Volumn 10: No. 1–2, pp 1–141, 2017 (ISBN: 9781680832884). Now Publishers.

## Contributions to Books

- K. Zhang, B. Schölkopf, K. Muandet, Z. Wang, Z. Zhou, and C. Persello. **Single-Source Domain Adaptation with Target and Conditional Shift**, In *Regularization, Optimization, Kernels, and Support Vector Machines*, (Ed) JAK Suykens, M Signoretto, and A Argyriou, Chapman and Hall/CRC, Boca Raton, USA, 427–456.

## Conference Proceedings

*Conference ranking*: A*=4%, A=14%, B=27%, C=50% (src: http://portal.core.edu.au/conf-ranks/)

- (A*) J. Kübler, W. Jitkrittum, B. Schölkopf, and K. Muandet. **Learning Kernel Tests Without Data Splitting**, *Neural Information Processing Systems (NeurIPS 2020)*, Forthcoming, 2020.
- (A*) X. Chen, Z. Wang, S. Tang, and K. Muandet. **MATE: Plugging in Model Awareness to Task Embedding for Meta Learning**, *Neural Information Processing Systems (NeurIPS 2020)*, Forthcoming, 2020.
- (A*) K. Muandet, A. Mehrjou, S. K. Lee, and A. Raj. **Dual Instrumental Variable Regression**, *Neural Information Processing Systems (NeurIPS 2020)*, Forthcoming, 2020.
- (A*) J. Park and K. Muandet. **A Measure-Theoretic Approach to Kernel Conditional Mean Embeddings**, *Neural Information Processing Systems (NeurIPS 2020)*, Forthcoming, 2020.
- K. Karunratanakul, J. Yang, Y. Zhang, M. Black, K. Muandet, and S. Tang. **Grasping Field: Learning Implicit Representations for Human Grasps**, *International Conference on 3D Vision (3DV)*, 2020. (Oral Presentation, Best Paper Award)
- (A*) K. Muandet, W. Jitkrittum, and J. Kübler. **Kernel Conditional Moment Test via Maximum Moment Restriction**, *Proceedings of the 36th Conference on Uncertainty in Artificial Intelligence (UAI 2020)*, PMLR 124:41–50, 2020.
- (A) N. Kilbertus, M. Gomez-Rodriguez, B. Schölkopf, K. Muandet, and I. Valera. **Fair Decision Despite Imperfect Predictions**, *Proceedings of the 23rd International Conference on Artificial Intelligence and Statistics (AISTATS 2020)*, PMLR 108:277–287, 2020.
- (A) I. Schuster, M. Mollenhauer, S. Klus, and K. Muandet. **Kernel Conditional Density Operators**, *Proceedings of the 23rd International Conference on Artificial Intelligence and Statistics (AISTATS 2020)*, PMLR 108:993–1004, 2020.
- J.J. Zhu, K. Muandet, M. Diehl, B. Schölkopf. **A New Distribution-Free Concept for Representing, Comparing, and Propagating Uncertainty in Dynamical Systems with Kernel Probabilistic Programming**, *the 21st International Federation of Automatic Control (IFAC) World Congress*. 2020.
- (A*) Y. Zhang, S. Tang, K. Muandet, C. Jarvers, and H. Neumann. **Local Temporal Bilinear Pooling for Fine-grained Action Parsing**, *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR 2019)*, pp. 12005–12015, 2019.
- (A) R. Babber, K. Muandet, and B. Schölkopf, **A Scalable Mixed-norm Approach for Learning Lightweight Models in Large-Scale Classification**, *SIAM International Conference on Data Mining (SDM 2016)*, pages 234–242, Miami, Florida, USA.
- (A*) D. Lopez-Paz, K. Muandet, B. Schölkopf, and Ilya Tolstikhin, **Towards a Learning Theory of Cause-Effect Inference**, *The 32nd International Conference on Machine Learning (ICML 2015)*, PMLR 37:1452–1461, 2015.
- (A*) K. Muandet, B. Sriperumbudur, and B. Schölkopf, **Kernel Mean Estimation via Spectral Filtering**, *The 28th Annual Conference on Neural Information Processing Systems (NeurIPS 2014)*, pages 1–9. MIT Press, 2014.

- (A*) G. Doran, K. Muandet, K. Zhang, B. Schölkopf, **A Permutation-Based Kernel Conditional Independence Test**. *the 30th Conference on Uncertainty in Artificial Intelligence (UAI 2014)*, pages 132–141. AUAI Press Corvallis, Oregon.

- (A*) K. Muandet, K. Fukumizu, B. Sriperumbudur, A. Gretton, and B. Schölkopf, **Kernel Mean Estimation and Stein Effect**. *The 31st International Conference on Machine Learning (ICML 2014)*, PMLR 32(1):10–18, 2014.

- (A*) K. Zhang, B. Schölkopf, K. Muandet, and Z. Wang. **Domain Adaptation under Target and Conditional Shift**. *The 30th International Conference on Machine Learning (ICML 2013)*, PMLR 28(3):819–827, 2013.

- (A*) K. Muandet and B. Schölkopf, **One-Class Support Measure Machines for Group Anomaly Detection**. *The 29th Conference on Uncertainty in Artificial Intelligence (UAI 2013)*, pages 449–458, AUAI Press, Corvallis, Oregon.

- (A*) K. Muandet, D. Balduzzi, and B. Schölkopf, **Domain Generalization via Invariant Feature Representation**. *The 30th International Conference on Machine Learning (ICML 2013)*, PMLR 28(1):10-18, 2013.

- (A*) K. Muandet, K. Fukumizu, F. Dinuzzo, and B. Schölkopf, **Learning on Distributions via Support Measure Machines**, 2012. *The 26th Annual Conference on Neural Information Processing Systems (NeurIPS 2012)*, pages 10-18. MIT Press, 2012. (`Spotlight Talk`)

- K. Muandet, S. Marukatat, and C. Nattee. **Query Selection via Weighted Entropy for Graph-based Semi-Supervised Classification**. In *Proceedings of the 1st Asian Conference on Machine Learning (ACML 2009)*, pages 278–292, Nanjing, China, 2009.

- (A) K. Muandet, S. Marukatat, and C. Nattee. **Robust Graph Hyperparameter Learning for Graph-based Semi-Supervised Classification**. In *Proceedings of the 13th Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD 2009)*, pages 98-109, Bangkok, Thailand, 2009.

- N. Patanachai, B. Uyyanonvara, C. Sinthanayothin, W. Tharanon, P. Sompot, and K. Muandet. **PACS (Picture Archiving Communication System) for Dentistry**. *The 5th International Conference on Electrical Engineering/Electronics, Computer, Telecommunications and Information Technology, 2008. (ECTI-CON 2008)*, 1:77-80, May 2008.

- C. Sinthanayothin, K. Muandet, B. Uyyanonvara, and W. Tharanon. **Development of Dental Software: Introducing ADTEC Dicom Viewer**. In *Bone and Dental Technology Symposium*, 2007.

## Workshop Contributions

- (A*) N. Kilbertus, M. Gomez Rodriguez, B Schölkopf, K. Muandet, I. Valera , **Improving Consequential Decision Making under Imperfect Predictions**, *The KDD 2019 Workshop on Data Collection, Curation, and Labeling for Mining and Learning*, Anchorage, Alaska USA, 2019.

- (A*) K. Muandet, M. Kanagawa, S. Saengkyongam, and S. Marukatat, **Counterfactual Mean Embedding: A Kernel Method for Nonparametric Causal Inference**, *The ICML 2018 Workshop on Machine Learning for Causal Inference, Counterfactual Prediction, and Autonomous Action (CausalML)*, Stockholm, Sweden, 2018.

- (A*) D. Lopez-Paz, K. Muandet, and B. Recht, **The Randomized Causation Coefficient**, *NeurIPS 2014 Workshop on Modern Nonparametrics 3: Automating the Learning Pipeline (oral presentation)*, Montreal, Canada, 2014.

- (A*) K. Muandet, **Hilbert Space Embedding for Dirichlet Process Mixtures**. *The NeurIPS 2012 Workshop on Confluence Between Kernel Methods and Graphical Models (oral presentation)*, Lake Tahoe, Nevada, USA, 2012.

## Master/PhD Thesis

- K. Muandet. **From Points to Probability Measures: Statistical Learning on Distributions with Kernel Mean Embedding**, Doctoral Thesis, University of Tübingen, 2015.

- K. Muandet. **Infinite Independent Subspace Analysis**, M.Sc. Thesis, University College London, 2010.

## Unpublished Works

- K. Muandet and B. Schölkopf. **A Unifying View of Support Measure Machines, Support Vector Machines, and Parzen Window Classifiers**.
  `http://krikamol.org/research/papers/smm-unifying.pdf`.

### Preprints/Under Reviews

- R. Zhang, M. Imaizumi, B. Schölkopf, K. Muandet. **Maximum Moment Restriction for Instrumental Variable Regression**, arXiv:2010.07684 [cs.LG], 2020.
- Y. Zhang, K. Muandet, Q. Ma, H. Neumann, and S. Tang. **Frontal Low-rank Random Tensors for Fine-grained Action Segmentation**, arXiv:1906.01004 [cs.LG], 2020.
- A. Mehrjou, W. Jitkrittum, K. Muandet, and B. Schölkopf. **Kernel-Guided Training of Implicit Generative Models with Stability Guarantees**, arXiv:1901.09206 [cs.LG], 2019.
- S. K. Lee, L. Gresele, M. Park, and K. Muandet. **Privacy-Preserving Causal Inference via Inverse Probability Weighting**, arXiv:1905.12592 [cs.LG], 2019.

## Selected Research Projects

#### DS4: A Discriminative Spatial-Spectral Model for Speckle Suppression

A machine learning software that processes unocculted and highly speckled light in the P1640 spectroscopic coronograph for the purpose of exoplanet detection.

#### Face-based Image Retrieval System

The system uses a human face as a query for searching and retrieving digital images in large databases. A face detection algorithm is used to detect faces, which are then compared with the query image. A promising similarity measure algorithm is used to compare the human face.

#### Dicom Viewer Software

This software enable us to read the DICOM images from cone beam CT (i-CAT) and display in axial, coronal, sagittal and panoramic views. The software also shows Cross Section View which is reconstructed as a cross plane image intersecting at a right angle with the panoramic line, relative position of mandibular canal. TMJ view is also another feature for assisting diagnostic of TMJ abnormalities.

#### Emotion Recognition from Speech

We develop the system that is able to recognise emotions from speech signals. Four types of features are used namely pitch-related, intensity-related, duration-related, and spectral-related features. The feature selection is performed using Principle Component Analysis (PCA). The results of the experiments are then compared among K-nearest neighbour, naive Bayes, and Support Vector Machine.

#### PACS (Picture Archiving Communication System) for Dentistry

PACS (Picture Archiving Communication System) is a system that manage and transfer information for dental field focusing on 2 main fields as follows. First application was to open Digital Imaging and Communications in Medicine (DICOM) files of patients inside the database via Local Area Network (LAN) and Hypertext Transfer Protocol (HTTP). Second application was to pass patients personal data and treatment data on the network by applying MySQL database.

#### ULookr : A Simple Search Engine

*ULookr* is a web-based search engine implemented in PHP. This software demonstrates how search engines work. Important modules of ULookr consists of web crawler, web indexer, and information retrieval modules.

#### Simulation of Traffic Light Control Using Reinforcement Learning

This research studied the application of reinforcement learning in the traffic light control. The system takes into account the number of cars at each junction and learn the optimal policy to control the traffic light.

#### Moving Object Detection in Video System

This project used many image processing techniques for detecting the moving objects in video scenes. The result of the system were quite promising. This project was also supported by National Electronics and Computer Technology Centre.

#### Information Management Application for Dormitory

The student housing management software

## Professional Affiliations/Activities

**ACML 2020 Workshop on Machine Learning in Thailand**, *Co-organizer* — *Bangkok, Thailand, 18.11.2020*
with Pattarawat Chormai (TU Berlin), Wittawat Jitkrittum (Google Research), Sanparith Marukatat (NECTEC), Kobkaew Opasjumruskit (German Aerospace Center) (DLR), and Titipat Achakulvisut (University of Pennsylvania)

**International Conference on Artificial Intelligence and Statistics (AISTATS) 2021** — *San Diego, USA*

*Publication Chair* — *13-15.04.2021*

**MLRS 2019 - Machine Learning Research School**, *Co-organizer* — *Bangkok, Thailand*
with Wittawat Jitkrittum (Google Research), Seksan Kiatsupaibul (Chulalongkorn University), Sarana Nutanong (VISTEC), Supasorn Suwajanakorn (VISTEC), and Ekapol Chuangsuwanich (Chulalongkorn University) — *04-11.08.2019*

**DALI 2019 - Data, Learning and Inference**, *Co-chair* — *George, South Africa*
with Arthur Gretton (Gatsby Unit, UCL) and Shakir Mohamed (Google DeepMind) — *03-05.01.2019*

**The NeurIPS 2017 Workshop on Learning on Distributions, Functions, Graphs and Groups**, *Co-organizer* — *California, USA*
with Florence d'Alché-Buc (Télécom ParisTech), Bharath Sriperumbudur (Penn State), and Zoltán Szabó (École Polytechnique) — *08.12.2017*
Co-located with the 31st Neural Information Processing Systems (NeurIPS 2017)

**The Institute of Statistical Mathematics**, *Foreign Visiting Researcher* — *Tokyo, Japan*
Invited to visit the Research Center for Statistical Machine Learning — *03–24.07.2017*

**The 9th Asian Conference on Machine Learning (ACML 2017)**, *Workshop co-chair* — *Seoul, Korea*
with Jihun Hamm (Ohio State University) — *15.11.2017 – 17.12.2017*

**Dagstuhl Seminar : "New Directions for Learning with Kernels and Gaussian Processes"**, *Invited participant* — *Wadern, Germany*
Participation in the seminar is by invitation only. — *27.11.2016 – 02.12.2016*

**Special Seminar : "Unravel the Mystery of AlphaGo, Deep Learning, and the Future of Artificial Intelligence"**, *Co-organizer* — *Bangkok, Thailand*
Including invited speaker, distinguished panelists, and nearly 300 participants — *22.03.2016*

**Neural Information Processing Systems (NeurIPS 2016)**, *Program Manager* — *Barcelona, Spain*
Serve as the program manager for NeurIPS 2016 with Ulrike von Luxburg (University of Tübingen), Isabelle Guyon (ClopiNet), and Behzad Tabibian (MPI-IS) — *2015-2016*

**Machine Learning Summer School (MLSS 2015)**, *Speaker* — *Tübingen, Germany*
Co-taught a practical course on kernel methods — *13-24.07.2015*
MAX PLANCK INSTITUTE FOR INTELLIGENT SYSTEMS

**Machine Learning Summer School (MLSS 2013)**, *Student Volunteer* — *Tübingen, Germany*
MAX PLANCK INSTITUTE FOR INTELLIGENT SYSTEMS — *26.8-06.09.2013*

**Empirical Inference Symposium**, *Co-organizer* — *Tübingen, Germany*
In honor of the 75th birthday of Professor Vladimir V. Vapnik. — *8-10.12.2011*
MAX PLANCK INSTITUTE FOR INTELLIGENT SYSTEMS

**Machine Learning Journal Club**, *Participant* — *London, United Kingdom*
GATSBY COMPUTATIONAL NEUROSCIENCE UNIT, UCL — *01.2010 – 10.2010*

**Image Technology Laboratory**, *Research trainee* — *Pathumthani, Thailand*
TOPIC: Machine learning in computer vision, e.g., face recognition — *06.2007 – 06.2009*
NATIONAL ELECTRONICS AND COMPUTER TECHNOLOGY CENTRE

*Research trainee* — *Pathunthani, Thailand*
TOPIC: Medical image processing — *06.2008 – 06.2009*
ADVANCED DENTAL TECHNOLOGY CENTRE

## Teaching/Supervision Experience

### Supervised Students

#### PHD STUDENTS

**Junhyung Park (ETH Zürich/Cambridge)** — *Tübingen, Germany*
MAX PLANCK INSTITUTE FOR INTELLIGENT SYSTEMS — *04.11.2019-Present*

**Jonas Kübler (University of Tübingen)** — *Tübingen, Germany*
Co-supervise with Bernhard Schölkopf — *01.05.2019-Present*
MAX PLANCK INSTITUTE FOR INTELLIGENT SYSTEMS

**MASTER AND UNDERGRADUATE STUDENTS**

**Purin Klunklar, Weerapatra Charoenkitsupat, Siraporn Tongurai** — *Bangkok, Thailand*
*Undergraduate Senior Project*, MAHIDOL UNIVERSITY — *06.2016-05.2017*

**Chirag Gupta**, *Undergraduate Intern (now PhD student at CMU)* — *Tübingen, Germany*
Co-supervise with Ilya Tolstikhin and Bernhard Schölkopf — *06.2015-08.2015*
MAX PLANCK INSTITUTE FOR INTELLIGENT SYSTEMS

**Uzair Akbar**, *Master, Technical University of Munich (TUM)* — *Tübingen, Germany*
MAX PLANCK INSTITUTE FOR INTELLIGENT SYSTEMS — *04.2020-12.2020*

**INTERNSHIP STUDENTS**

**Korrawe Karunratanakul and Xiaohan Chen** — *Tübingen, Germany*
Co-supervise with Siyu Tang — *06.2019-12.2019*
*Grassroots Projects*, MAX PLANCK INSTITUTE FOR INTELLIGENT SYSTEMS

**Prabhu Pradhan**, *Undergrad, IISc Bangalore* — *Tübingen, Germany*
MAX PLANCK INSTITUTE FOR INTELLIGENT SYSTEMS — *04.2020-11.2020*

### Taught Courses

MAHIDOL UNIVERSITY, BANGKOK, THAILAND

**SCMA446** : MACHINE LEARNING, *Undergraduate level* — *2nd Semester/2016*
**SCMA181** : STATISTICS FOR MEDICAL SCIENCE, *Undergraduate level* — *2nd Semester/2016*

**SCMA241** : COMPUTER PROGRAMMING, *Undergraduate level* — *1st Semester/2016*
**SCIM301** : NUMERICAL ANALYSIS, *Undergraduate level* — *1st Semester/2016*
**SCMA481** : TIME SERIES ANALYSIS, *Undergraduate level* — *1st Semester/2016*

**SCMA115** : CALCULUS, *Undergraduate level* — *Summer Semester/2015*

**SCMA165** : ORDINARY DIFFERENTIAL EQUATION, *Undergraduate level* — *2nd Semester/2015*
**SCMA351** : LINEAR ALGEBRA, *Undergraduate level* — *2nd Semester/2015*
**SCMA292** : MATH MODELLING : MACHINE LEARNING, *Undergraduate level* — *2nd Semester/2015*
**SCMA695** : APPLIED MATHEMATICS SEMINAR 2, *Graduate level* — *2nd Semester/2015*

## Editorial Reviews

### Area Chair

NEURAL INFORMATION PROCESSING SYSTEMS (NEURIPS) — *2019–2020*
INTERNATIONAL CONFERENCE ON MACHINE LEARNING (ICML) — *2019*
ASIAN CONFERENCE ON MACHINE LEARNING (ACML), *Senior Program Committee* — *2017*

### Peer Reviewer

CZECH SCIENCE FOUNDATION, *Grant Proposal* — 2017
JOURNAL OF MACHINE LEARNING RESEARCH (JMLR) — *2015–2020*
JOURNAL OF CAUSAL INFERENCE (JCI) — *2018*
NEUROCOMPUTING — *2014*
IEEE TRANSACTION ON INFORMATION THEORY — *2017*
IEEE TRANSACTION ON KNOWLEDGE AND DATA ENGINEERING — *2013*
IEEE TRANSACTION ON PATTERN ANALYSIS AND MACHINE INTELLIGENCE — *2013, 2016*
DATA MINING AND KNOWLEDGE DISCOVERY — *2013*
NEURAL INFORMATION PROCESSING SYSTEMS (NEURIPS) — *2013 – 2015, 2018*

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|---|---|
| International Conference on Machine Learning (ICML) | *2015, 2017* |
| Computational Learning Theory (COLT) | *2018* |
| International Joint Conference on Artificial Intelligence (IJCAI) | *2015* |
| Artificial Intelligence & Statistics (AISTATS) | *2016, 2020* |
| International Conference on Learning Representation (ICLR) | *2018* |

## Invited Talks/Presentations

**Data Science Program, Department of Statistics, Chulalongkorn University** — *Bangkok, Thailand*
Topic: "The Achilles Heel of Machine Learning" — *23.11.2020*

**REGML 2020: Regularization Methods for Machine Learning (virtual)** — *Genova, Italy*
Tutorial: "Recent Advances in Hilbert Space Representation of Probability Distributions" — *01.07.2020*

**Workshop on Functional Inference and Machine Intelligence (FIMI), EURECOM** — *Sophia Antipolis, France*
Topic: "Learning Conditional Moment Restrictions with Kernels" — *17-19.02.2020*

**Graduate School and Research Center in Digital Science, EURECOM** — *Sophia Antipolis, France*
Topic: "DualIV: A Single Stage Instrumental Variable Regression" — *19.11.2019*

**The Second Korea-Japan Machine Learning Workshop** — *Jeju Island, South Korea*
Topic: "Counterfactual Policy Evaluation and Optimization in Reproducing Kernel Hilbert Spaces" — *22-24.02.2019*

**Workshop on Functional Inference and Machine Intelligence (FIMI), ISM** — *Tokyo, Japan*
Topic: "Eigendecompositions of Transfer Operators in Reproducing Kernel Hilbert Spaces" — *19-21.02.2018*

**"Ola Bratteli" Seminar, Department of Mathematics and Computer Science, Thammasat University** — *Pathumthani, Thailand*
Topic: "The Foundation of Machine Learning and Its Applications" — *19.10.2017*

**Facebook Artificial Intelligence Research (FAIR)** — *New York , USA*
Topic: "Learning with Implicit Representation of Probability Distributions" — *09.10.2017*

**A*STAR Artificial Intelligence Programme (A*AI)** — *Singapore*
Topic: "Learning with Implicit Representation of Probability Distributions" — *27.09.2017*

**Department of Computer Science, University of Toronto** — *Toronto , Canada*
Topic: "Learning with Implicit Representation of Probability Distributions" — *14.09.2017*

**RIKEN Center for Advanced Intelligence Project (AIP)** — *Tokyo, Japan*
Topic: "Counterfactual Mean Embedding with Applications in Nonparametric Causal Inference" — *09.03.2017*

**Faculty of Commerce and Accountancy, Chulalongkorn University** — *Bangkok, Thailand*
Topic: "Causal Inference : A Machine Learning Perspective" — *17.11.2016*

**Department of ICT, Mahidol University** — *Bangkok, Thailand*
Topic: "Learning from Probability Distributions via Kernel Mean Embeddings" — *26.08.2016*

**Department of Computer Science, Thammasat University** — *Bangkok, Thailand*
Topic: "Kernel Methods and Applications" — *28.03.2016*

**Department of Statistics, University of Oxford** — *Oxford, UK*
Topic: "Learning from Probability Distribution via Kernel Mean Embedding" — *01.12.2015*

**Center for Cosmology and Particle Physics, New York University** — *New York, USA*
Topic: "Support Vector Machine, Support Measure Machine, and Quasar Target Selection" — *19.12.2012*

**Astro Imaging Workshop** — *Val Müstair, Switzerland*
Topic: "Support Measure Machine for Quasar Target Selection" — *2012*

**Occam's Razor Seminar** *Tübingen, Germany*
TOPIC: "Statistical Learning Theory" *2012*

**Asian Conference on Machine Learning** *Nanjing, China*
PAPER: "Query Selection via Weighted Entropy for Graph Based Semi-supervised Classification" *2009*

**The Pacific-Asia Conference on Knowledge Discovery and Data Mining**, *Bangkok, Thailand*
PAPER: "Robust Graph Hyperparameter Learning for Graph Based Semi-supervised Classification" *2009*

**National Science and Technology Development Agency** *Pathumthani, Thailand*
TOPIC: "Robust Graph Hyperparameter Learning for Graph Based Semi-supervised Classification" *2009*

**Gatsby Computational Neuroscience Unit**, UCL, *London, United Kingdom*
TOPIC: "Research interest in machine learning" *2009*

**Bone and Dental Technology Symposium** *Bangkok, Thailand*
PAPER: "Development of dental software: Introducing ADTEC dicom viewer" *2007*

## Awards and Honours

3DV 2020 Best Paper Award, *International Conference on 3D Vision* *2020*
NeurIPS 2015 Best Reviewer Award, *Neural Information Processing Systems Foundation* *2015*
NeurIPS 2014 Travel Award, *Neural Information Processing Systems Foundation* *2014*
NeurIPS 2012 Travel Award, *Neural Information Processing Systems Foundation* *2012*
Machine Learning Summer School Scholarship, *MLSS2011 Singapore* *2011*
SCG Talent Scholarship, *The Siam Cement Foundation* *2008*
Academic Excellence Award (Gold medal), *SIIT, Thammasat University* *2008*
Academic Excellence Award, *SIIT, Thammasat University* *2005 – 2007*
Academic Excellence Award, *Thammasat University* *2006 – 2007*
Fundamental Information Technology Engineer Examination, *Information Technology Professional Council* *2007*
Academic Excellence Award, *Professor Dr. Tab Nilanidhi Foundation* *2006*
Young Scientist e-Passport, *the Ministry of Science and Technology* *2006*
The 2nd prize in Young Scientist Competition in Computer Science and Engineering Projects, *National Electronics and Computer Technology Centre* *2005*
Research Funding for Computer Science Project, *National Electronics and Computer Technology Centre* *2003*
The 3rd Student in Honor Roll, *Mahidol Wittayanusorn School* *2003*
The 1st Student in Honor Roll, *Princess Chulabhorn's College, Satun* *2002*
Information Technology Associate Exam(ITAE), *National Electronics and Computer Technology Centre* *2002*

## Computer and Programming Skills

| | |
|---|---|
| Operating Systems | UNIX, LINUX, OSX, WINDOW 98/XP/VISTA |
| Programming | PYTHON, R, C/C++, JAVA, LaTeX, PHP, UNIX SHELL, SQL |
| Tools | WEKA, SCILAB, OCTAVE, MATLAB, JUPYTER NOTEBOOK |
| Libraries | OPENCV, GTK/GTKMM, TENSORFLOW |

## Languages

THAI: Fluent – First Language, ENGLISH: Fluent, GERMAN: Intermediate