

Rizal Fathony

Curriculum Vitae

UIC SEL 4211, 950 South Halsted Street
Chicago, Illinois, USA, 60607
✉ rfatho2@uic.edu
🌐 <http://rizal.fathony.org>

Education

- 2014 – **PhD, Computer Science**, *University of Illinois at Chicago*, Chicago, Illinois, USA.
Present Advisor: Prof. Brian D. Ziebart.
2012 – 2014 **MS, Computer Science**, *University of Illinois at Chicago*, Chicago, Illinois, USA.
2003 – 2007 **BS, Statistical Computing**, *Institute of Statistics*, Jakarta, Indonesia.

Publications

- In preparation **[1] Consistent Robust Adversarial Prediction for General Multiclass Classification**
Journal manuscript in preparation
Rizal Fathony, Kaiser Asif, Anqi Liu, Mohammad Bashiri, Xinhua Zhang, Brian D. Ziebart
- Conference **[2] Distributionally Robust Graphical Models**
Advances in Neural Information Processing Systems (NIPS), 2018 (to appear)
Rizal Fathony, Ashkan Rezaei, Mohammad Bashiri, Xinhua Zhang, Brian D. Ziebart
- [3] Efficient and Consistent Adversarial Bipartite Matching**
International Conference on Machine Learning (ICML), 2018
Rizal Fathony*, Sima Behpour*, Xinhua Zhang, Brian D. Ziebart
- [4] Adversarial Surrogate Losses for Ordinal Regression**
Advances in Neural Information Processing Systems (NIPS), 2017
Rizal Fathony, Mohammad Bashiri, Brian D. Ziebart
- [5] Adversarial Multiclass Classification: A Risk Minimization Perspective**
Advances in Neural Information Processing Systems (NIPS), 2016
Rizal Fathony, Anqi Liu, Kaiser Asif, Brian D. Ziebart
- Workshop **[6] Learning to Explore by Abstaining**
13th Women in Machine Learning Workshop (WiML), 2018 (to appear)
Anqi Liu, **Rizal Fathony**, Brian D. Ziebart
- [7] Discrete Wasserstein GANs**
IEEE Information Theory and Applications Workshop (ITA) 2018
Rizal Fathony, Naveen Goela
- Preprint **[8] Kernel Robust Bias-Aware Prediction under Covariate Shift**
ArXiv Preprints, 2016
Anqi Liu, **Rizal Fathony**, Brian D. Ziebart

Research Interest

- Interest:
- Consistent learning algorithm
 - Graphical models
 - Causal machine learning
 - Multivariate metrics
 - Approximate inference
 - Bayesian machine learning
 - Robust adversarial learning
 - Fairness in machine learning
 - Multi-task learning
 - Structured prediction
 - Deep learning
 - Multi-modal regression

Completed and Ongoing Research

2015–Present **Performance-Aligned Learning Algorithms with Statistical Guarantees**

My research focuses on designing robust adversarial learning algorithms for various tasks that simultaneously align with the learning objective by incorporating the performance metrics or loss functions into the learning process and provide the statistical guarantee of Fisher consistency. In my previous and ongoing works, I design robust adversarial learning algorithms for the following tasks:

- Multiclass classification
- Ordinal classification with absolute loss
- Ordinal classification with squared loss
- Classification with abstention
- Conditional graphical models (chain, tree & low-treewidth graph structures)
- Bipartite matching in graphs
- Fairness in machine learning

Manuscript Reviews

Role: Program Committee Member or Reviewer for Main Conferences

- 2019 Pacific-Asia Knowledge Discovery and Data Mining (PAKDD) 2019
- 2019 AAAI Conference on Artificial Intelligence (AAAI) 2019
- 2018 Neural Information Processing Systems (NIPS) 2018
- 2018 International Conference on Pattern Recognition (ICPR) 2018
- 2016 Neural Information Processing Systems (NIPS) 2016

Invited Talk

- October 2018 Carnegie Mellon University (Pittsburgh, USA)
Performance-Aligned Learning Algorithms with Statistical Guarantees

Teaching Assistantship

- Fall 2016 CS 412 – Introduction to Machine Learning
- Spring 2016 CS 412 – Introduction to Machine Learning
- Fall 2015 CS 491 – Introduction to Machine Learning

Work Experience

- 2014 – **Research Assistant**
Present *University of Illinois at Chicago* | Chicago, Illinois, USA
Research assistant at Prof. Brian Ziebart’s lab on robust adversarial learning algorithms design for various machine learning tasks.
- May – August **Research Intern**
2017 *Technicolor Research AI Lab* | Los Altos, California, USA
Research intern in deep learning area, especially in generative adversarial networks (GAN) architectures and applications.
- 2015 – 2016 **Teaching Assistant**
University of Illinois at Chicago | Chicago, Illinois, USA
Teaching assistant for the “Introduction to Machine Learning” class for three semesters.
- 2008 – 2012 **Statistical Dissemination System Developer**
Central Bureau of Statistics Indonesia | Jakarta, Indonesia
Developed web-based statistical data dissemination and visualization systems for major surveys and censuses conducted by Central Bureau of Statistics Indonesia.

Honors and Awards

- 2018 NIPS Travel Award 2018 (USD 1,000).
- 2017 NIPS Travel Award 2017 (USD 800).
- 2016 NIPS Travel Award 2016 (USD 600).
- 2012 – 2014 International Fulbright Master of Science and Technology Scholarship Award, from the United States Department of State, Bureau of Educational and Cultural Affairs.
- 2010 Runner Up Developer at Indonesia Open Source Festival - Android Applications Competition, Bandung, Indonesia.
- 2009 Nominee of Research and Development Category at Asia Pacific Information and Communication Technology Award (APICTA), Melbourne, Australia.
- 2009 Best Research and Development Category at Indonesia Information and Communication Technology Award (INAICTA), Jakarta, Indonesia.
- 2003 – 2007 Grantee of a full scholarship and monthly stipend from the Indonesian government during undergraduate study at the Institute of Statistics, Jakarta, Indonesia.

Skills

- Scientific Advanced: *Julia, MATLAB, Python, R*; Intermediate: *Lua*
- General Advanced: *C#, Java, Python*; Intermediate: *C, C++, Javascript*; Beginner: *Scala, Swift*
- Library Advanced: *PyTorch, KNet, Numpy, Scipy*; Intermediate: *TensorFlow, MXNet*