

# Rizal Fathony

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Carnegie Mellon University  
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## Position

Post-Doctoral Research Fellow, 2019–Present.

Carnegie Mellon University, School of Computer Science.

Hosted by: Prof. J. Zico Kolter.

## Education

Ph.D. Computer Science, University of Illinois at Chicago, 2019.

Dissertation Title: “Performance-Aligned Learning Algorithms with Statistical Guarantees”.

Advisor: Prof. Brian D. Ziebart

Committee: Brian D. Ziebart, Bhaskar DasGupta, Xinhua Zhang, Lev Reyzin, Simon Lacoste-Julien.

M.S. Computer Science, University of Illinois at Chicago, 2014.

B.S. Statistical Computing, Institute of Statistics, Jakarta, Indonesia. 2007.

## Research Interests

Machine Learning, Goal-Oriented Learning, Differentiable Learning, Graphical Models, Fairness in ML.

## Publications

### Conference Papers

Note: asterisks (\*) indicate authors with equal contributions.

1. AP-Perf: Incorporating Generic Performance Metrics in Differentiable Learning. [PDF]  
**Rizal Fathony**, J. Zico Kolter.  
International Conference on Artificial Intelligence and Statistics (AISTATS) 2020.
2. Fairness for Robust Log Loss Classification. [PDF]  
Ashkan Rezaei\*, **Rizal Fathony\***, Omid Memarrast, Brian D. Ziebart.  
AAAI Conference on Artificial Intelligence (AAAI), 2020.
3. Distributionally Robust Graphical Models. [PDF]  
**Rizal Fathony**, Ashkan Rezaei, Mohammad Bashiri, Xinhua Zhang, Brian D. Ziebart.  
Advances in Neural Information Processing Systems (NeurIPS), 2018
4. Efficient and Consistent Adversarial Bipartite Matching. [PDF]  
**Rizal Fathony\***, Sima Behpour\*, Xinhua Zhang, Brian D. Ziebart.  
International Conference on Machine Learning (ICML), 2018.

5. Adversarial Surrogate Losses for Ordinal Regression. [PDF]  
**Rizal Fathony**, Mohammad Bashiri, Brian D. Ziebart.  
Advances in Neural Information Processing Systems (NeurIPS), 2017
6. Adversarial Multiclass Classification: A Risk Minimization Perspective. [PDF]  
**Rizal Fathony**, Anqi Liu, Kaiser Asif, Brian D. Ziebart.  
Advances in Neural Information Processing Systems (NeurIPS), 2016.

## Under Review

7. Consistent Robust Adversarial Prediction for General Multiclass Classification. [PDF]  
**Rizal Fathony**, Kaiser Asif, Anqi Liu, Mohammad Bashiri, Wei Xing, Sima Behpour, Xinhua Zhang, Brian D. Ziebart.  
Submitted to the Journal of Machine Learning Research (JMLR).

## Ph.D. Dissertation

8. Performance-Aligned Learning Algorithms with Statistical Guarantees. [PDF]  
**Rizal Fathony**.  
University of Illinois at Chicago. 2019

## Workshop Papers

9. Fairness for Robust Log Loss Classification.  
Ashkan Rezaei\*, **Rizal Fathony\***, Omid Memarrast, Brian D. Ziebart.  
NeurIPS 2019 Workshop on Machine Learning with Guarantees, 2019.
10. Distributionally Robust Graphical Models.  
**Rizal Fathony**, Ashkan Rezaei, Mohammad Bashiri, Xinhua Zhang, Brian D. Ziebart.  
ICML 2019 Workshop On Tractable Probabilistic Modeling, 2019
11. Learning to Explore by Abstaining.  
Anqi Liu, **Rizal Fathony**, Brian D. Ziebart.  
Women in Machine Learning Workshop (WiML 2018).

## Preprint

12. Kernel Robust Bias-Aware Prediction under Covariate Shift.  
Anqi Liu, **Rizal Fathony**, Brian D. Ziebart.  
ArXiv Preprints, 2016.

## Invited Talks

- 2020 *Goal-Oriented Learning*  
Georgia State University (Atlanta, GA)  
Carleton University (Ottawa, ON, Canada)
- 2019 *Designing Performance-Aligned Learning Algorithms using Distributionally Robust Principle*  
*In Recent Advances in Learning and Distributionally Robust Optimization*  
INFORMS Annual Meeting 2019 (Seattle, WA)  
Institute for Operations Research and the Management Sciences
- 2018 *Performance-Aligned Learning Algorithms with Statistical Guarantees*  
Carnegie Mellon University (Pittsburgh, PA)
- 2018 *Efficient and Consistent Adversarial Bipartite Matching*  
International Conference on Machine Learning (ICML) 2018 (Stockholm, Sweden)

## Professional and Community Services

### Program Committee Member or Reviewer for Leading Conferences

- 2020 AAAI Conference on Artificial Intelligence (AAAI) 2020
- 2019 Neural Information Processing Systems (NeurIPS) 2019  
International Conference on Machine Learning (ICML) 2019  
Pacific-Asia Knowledge Discovery and Data Mining (PAKDD) 2019  
International Conference on Artificial Intelligence and Statistics (AISTATS) 2019  
AAAI Conference on Artificial Intelligence (AAAI) 2019
- 2018 Neural Information Processing Systems (NeurIPS) 2018  
International Conference on Pattern Recognition (ICPR) 2018
- 2016 Neural Information Processing Systems (NeurIPS) 2016

### Scientific Committee for Regional Conferences

- 2019 International Conference on Research and Academic Community Services 2019,  
Surabaya State University, Surabaya, Indonesia

### Reviewer for Machine Learning School Applications

- 2019 Southeast Asia Machine Learning School (SEA MLS) 2019, Jakarta, Indonesia

### Advising Indonesian Undergraduate Students

- 2019 GIK Lab: Garuda Ilmu Komputer. A mentoring program for Indonesian undergraduate students.

## Work Experience

### Carnegie Mellon University, School of Computer Science

Post-Doctoral Research Fellow, July 2019 – Present.

### University of Illinois at Chicago, Department of Computer Science

Research Assistant, Brian D. Ziebart, January 2017 – May 2019.  
Teaching Assistant, Introduction to Machine Learning, Brian D. Ziebart, August 2015 – December 2016.  
Research Assistant, Brian D. Ziebart, August 2014 – July 2015.

### Technicolor, Artificial Intelligence Research Lab

Research Intern, Naveen Goela, Summer 2017.

### Central Bureau of Statistics Indonesia

Statistical Dissemination System Developer, Headquarter Office, 2010 – 2012.  
Data Processing Supervisor, Rokan Hilir Regency Office, 2008 – 2010.  
Data Processing Supervisor, Riau Province Office, 2007 – 2008.

## Teaching Experience

### University of Illinois at Chicago, Department of Computer Science

UIC CS 412 – Introduction to Machine Learning, Teaching Assistant, Fall 2016.

UIC CS 412 – Introduction to Machine Learning, Teaching Assistant, Spring 2016.

UIC CS 491 – Introduction to Machine Learning, Teaching Assistant, Fall 2015.

### Central Bureau of Statistics Indonesia

Customer Satisfaction Survey 2011, Instructor, 2011.

Indonesia 2010 Population Census, Data Collection Instructor, 2010.

Census Block Mapping using Geographic Information System, Instructor, 2009.

### Institute of Statistics, Department of Statistical Computation

Learning C# Programming Language, Instructor, 2006.

## Honors and Awards

Top 30% Highest-Scoring Reviewers for NeurIPS 2018 Conference, 2018.

NeurIPS Conference Travel Awards 2016, 2017, and 2018 (USD 600, USD 800, and USD 1,000).

**International Fulbright Master of Science and Technology Award**,  
from the U.S. Department of State, Bureau of Educational and Cultural Affairs. 2012 – 2014

Runner Up Developer at Indonesia Open Source Festival (Android Applications Competition),  
Bandung, Indonesia, 2010.

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, 2009.

Grantee of a full scholarship and monthly stipend from the Indonesian government during undergrad-  
uate study at the Institute of Statistics, Jakarta, Indonesia, 2003 – 2007 .

## References

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School of Computer Science. Carnegie Mellon University  
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Prof. Xinhua Zhang  
Department of Computer Science. University of Illinois at Chicago  
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Prof. Lev Reyzin  
Department of Mathematics, Statistics, and Computer Science. University of Illinois at Chicago  
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