

# Maggie Makar

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## Education

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<b>Massachusetts Institute of Technology</b> Ph.D, Electrical Engineering and Computer Science	Expected 05/2021
<b>Massachusetts Institute of Technology</b> Master of Science, Electrical Engineering and Computer Science	05/2017
<b>University of Massachusetts, Amherst</b> B.S., Mathematics and Economics, <i>Summa Cum Laude</i>	02/2013

## Employment

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<b>Research Intern</b> , Google Brain	06/2020 - 09/2020
<b>Research Intern</b> , Microsoft Research	06/2018 - 09/2018
<b>Research Assistant</b> , Brigham and Women's Hospital	02/2013 - 08/2015
<b>Research Assistant</b> , Political Economy Research Institute	09/2012 - 12/2012
<b>Research Intern</b> , Donahue Institute,	08/2012 - 09/2012
<b>Research Assistant</b> , Center for Intelligent Information Retrieval	02/2012 - 08/2012

## Peer-reviewed publications

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\* denotes equal contribution.

1. **M. Makar**, F. Johansson, J. Guttag, D. Sontag, "Estimation of Bounds on Potential Outcomes For Decision Making". *ICML 2020*
2. **M. Makar**, A. Swaminathan, E. Kiciman, "A Distillation Approach to Data Efficient Individual Treatment Effect Estimation". *AAAI, 2019*
3. E. Mu, **M. Makar**, L. West, J. Guttag, D. Rosenberg, E. Shenoy. "Learning the Influence of Individual Clostridioides difficile Infections". *Open Forum Infectious Diseases, 2019*
4. **M. Makar**, J. Guttag, J. Wiens, "Learning the Probability of Activation in the Presence of Latent Spreaders". *AAAI, 2018 (oral presentation)*
5. J. Oh\*, **M. Makar\***, et. al, "A generalizable, data-driven approach to predict daily risk of Clostridium difficile infection at two large academic health centers". *Infection Control and Hospital Epidemiology, 2018*
6. K. Joynt, **M. Makar**, A. Gawande, D. Cutler, Z. Obermeyer, "The Most Expensive Patients in the Hospital", *Circulation, 2018*
7. **M. Makar\***, J. Antonelli\*, Q. Di, J. Schwartz, D. Cutler, F. Dominici, "Estimating the Causal Effect of Fine Particulate Matter Levels on Death and Hospitalization: Are Levels Below the Safety Standards Harmful?". *Epidemiology, 2017*

8. **M. Makar\***, J. Oh\*, et. al, “A data-driven approach to predict daily risk of Clostridium difficile infection at two large academic health centers” *Open Forum Infectious Diseases*, 2017
9. Z. Obermeyer, **M. Makar**, S. Abujaber, F. Dominici, S. Block, D. Cutler, “Association between the Medicare hospice benefit and health care utilization and costs for patients with poor-prognosis cancer”. *Journal of the American Medical Association*, 2014
10. **M. Makar**, M. Ghassemi, D. Cutler, Z. Obermeyer, “Short-term mortality prediction for elderly patients using Medicare claims data”. *International Journal of Machine Learning and Computing*, 2015
11. B. Powers, **M. Makar**, D. Cutler, Z. Obermeyer, “Cost Savings Associated with Expanded Hospice Use Among Medicare Beneficiaries with Poor Prognosis Cancer”. *Journal of Palliative Medicine*, 2015
12. Z. Obermeyer, S. Abujaber, **M. Makar**, S. Stoll, S. Kayden, L. Wallis, T. Reynolds, “Emergency care delivery in 59 low- and middle-income countries: Systematic review”. *WHO Bulletin*, 2015
13. Z. Obermeyer, B. Powers, **M. Makar**, N. Keating, D. Cutler, “Physician revealed preferences for hospice are strongly related to their patients’ enrollment in hospice”. *Health Affairs*, 2015
14. Z. Obermeyer, A. Clarke, **M. Makar**, J. Schuur, D. Cutler, “Emergency Care Use and the Medicare Hospice Benefit for Individuals with Cancer with a Poor Prognosis”. *Journal of the American Geriatrics Society*, 2016
15. S. Skamene, I. Agarwal, **M. Makar**, et al., “Impact of a dedicated palliative radiation oncology service on the use of single fraction and hypofractionated radiation therapy among patients with bone metastases”. *Annals of Palliative Medicine*, 2017

## Workshops and poster sessions

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1. *Utility maximizing bounds on potential outcome estimation*. Microsoft AI breakthroughs workshop, 2019.
2. *A distillation approach to data-efficient individual treatment effect estimation*. Machine learning for health workshop, NeurIPS, 2018.
3. *A distillation approach to data-efficient individual treatment effect estimation* Women in Machine Learning workshop, NeurIPS, 2018.
4. *Learning the probability of activation in the presence of latent spreaders*. Women in Machine Learning workshop, NeurIPS, 2017.
5. *Learning the probability of activation in the presence of latent spreaders*. Statistics and Data Science conference at MIT, 2017
6. *Estimating the Causal Effect of Lowering Particulate Matter Levels Below the National Ambient Air Quality Standards on Health Outcomes*. Joint Statistical Meeting (JSM), 2016
7. *Impact of a Dedicated Palliative Radiation Oncology Service on the Use of Single-Fraction and Hypofractionated Radiation Therapy Among Patients With Bone Metastases*. ASTRO, San Antonio, November 2015
8. *Learning meaningful representations from medical claims data*. Machine learning for healthcare workshop, NeurIPS, 2015
9. *Short-term mortality prediction for elderly patients using Medicare claims data*. Max Planck Institute, 2015

## Invited talks

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1. *Learnability of Contagious Infections Under Incomplete Testing*. Microsoft-MIT Trustworthy and Robust AI Collaboration, 2020
2. *Estimation of bounds on potential outcomes*. Microsoft-MIT Trustworthy and Robust AI Collaboration, 2019
3. *A distillation approach to data-efficient individual treatment effect estimation*. Spotlight talk at AAAI, Hawaii, February 2019.
4. *A distillation approach to data-efficient individual treatment effect estimation*. Microsoft Research, Redmond, August 2018.
5. *Spread of Contagions in the Presence of Latent Spreaders: Identifying Hidden Culprits and Learning the Probability of Infection*. University of Massachusetts, Amherst, September 2018
6. *Learning the probability of activation in the presence of latent spreaders*. Spotlight talk at AAAI, Hawaii, February 2018.
7. *Spread of Contagions in the Presence of Latent Spreaders*. Computational Cardiovascular Research Group, MIT, October 2017.
8. *Inference on graphs with missing nodes*. University of Michigan in Ann Arbor, July 2016
9. *Association between the Medicare hospice benefit and health care utilization and costs for patients with poor-prognosis cancer*. Harvard School of Public Health. October 2014

## Professional Service

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### TEACHING

**Co-organizer, instructor:** Whirlwind of Machine learning, MIT IAP 2017  
**Teaching assistant:** Machine learning for Healthcare, MIT Spring 2017

### MENTORSHIP

Advaith Anand, Masters of Engineering candidate 2018-2019  
Emily Mu, Masters of Engineering candidate 2018-2019  
Agni Kumar, Masters of Engineering Candidate 2019-2020  
Meghana Kamineni, Undergraduate researcher 2019-Present

### REVIEWING

International Conference on Machine Learning (ICML; *Top 5% reviewer award*)  
Neural Information Processing Systems (NeurIPS; *Top 5% reviewer award*)  
Proceedings of the Association for the Advancement of AI (AAAI)  
International Conference on Learning Representations (ICLR)  
Journal of Machine Learning Research (JMLR)  
Machine Learning for health NeurIPS workshop  
Women in Machine Learning NeurIPS workshop  
ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD)  
Journal of Health Economics

## Awards

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Harvey Fellowship (\$48,000)  
Ward McCarthy scholarship  
School of Behavioral and Social Sciences scholarship  
Economics Department Writing Award  
Life Members Scholarship

## Computer and Language Skills

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Computing: Python, and R  
Languages: English, Arabic, and French