

# JEREMY C. WEISS

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Heinz College ◊ Carnegie Mellon University

5000 Forbes Ave, Hamburg Hall ◊ Pittsburgh, PA 15213

## EDUCATION

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M.D.	<b>University of Wisconsin–Madison</b> School of Medicine and Public Health	2007 – 2009, 2014 – 2016
Ph.D.	<b>University of Wisconsin–Madison</b> Department of Computer Sciences	2009 – 2014
B.A./B.S.	<b>University of Pennsylvania</b> Department of Mathematics, Department of Biochemistry	2003 – 2007
H.S.	<b>The Lakeside School</b>	1999 – 2003

## RESEARCH EXPERIENCE

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**Carnegie Mellon University** Aug. 2016 - Present  
*Assistant Professor of Health Informatics* Pittsburgh, PA

- Research on machine learning methodologies for analysis of electronic health records
- Affiliate appointment: Machine Learning Department in the School of Computer Science
- Adjunct appointment: Department of Biomedical Informatics at the University of Pittsburgh

## TEACHING EXPERIENCE

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**Carnegie Mellon University** Aug. 2016 - Present  
*Assistant Professor of Health Informatics* Pittsburgh, PA

- Spring 2020: 94-887, Applied Analytics: the Machine Learning Pipeline (Masters level)
- Fall 2019: 95-845, Applied Analytics: the Machine Learning Pipeline (Masters level)
- Spring 2019: 95-845, Applied Analytics: the Machine Learning Pipeline (Masters level)
- Fall 2018: 95-845, Applied Analytics: the Machine Learning Pipeline (Masters level)
- Spring 2018: 95-845, Applied Analytics: the Machine Learning Pipeline (Masters level)
- Spring 2018: Machine Learning in Policy (PhD level)
- Summer 2017: Health Care Analytics
- Spring 2017: 95-845, Analytics Practicum: Machine Learning for Health Care
- Fall 2016: 95-796, Statistics for IT Managers/Intermediate Statistical Methods (Masters level)  
90-777, Intermediate Statistical Methods, cross-list

## PUBLICATIONS

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Wingrove P, et al. Using machine learning to predict primary care and advance workforce research. *Annals of Family Medicine*, 2020.

**Weiss JC**. Machine learning for clinical risk: wavelet reconstruction networks for marked point processes. Under review, 2019.

Fillmore N, Goryachev S, and **Weiss JC**. Hypersphere clustering to characterize healthcare providers using prescriptions and procedures from Medicare claims data. Proceeding of the *American Medical Informatics Association (AMIA) Annual Symposium*, 2019.

- Lo-Ciganic W, Huang JL, Zhang HH, **Weiss JC**, Wu Y, Kwok CK, Donohue JM, Cochran G, Gordon AJ, Malone DC, Kuza CC, Gellad WF. Evaluation of machine-learning algorithms for predicting opioid overdose risk among Medicare beneficiaries with opioid prescriptions. *JAMA Network Open*, 2019.
- Lo-Ciganic W, et al. Using machine learning to predict risk of opioid overdose in Medicare. *Pharmacology and Drug Safety*, 2019.
- Seymour CW, et al. Derivation, validation, and potential treatment implications of novel clinical phenotypes for sepsis. *Journal of the American Medical Association (JAMA)*, 2019.
- Kleiman R, Kuusisto F, Ross I, Peissig PL, Stewart R, Page CD, and **Weiss JC**. Machine learning assisted discovery of novel predictive lab tests using electronic health record data. Proceedings of the *American Medical Informatics Association (AMIA) Informatics Summit*. San Francisco, 2019.
- Weiss JC**. Piecewise-constant parametric distribution approximations for survival learning. Machine Learning for Healthcare Conference, *Proceedings of Machine Learning Research (PMLR)*, 2017.
- Weiss JC**, Kuusisto F, Boyd K, Liu J, and Page CD. Machine learning for treatment assignment: improving individualized risk attribution. *American Medical Informatics Association (AMIA) Annual Symposium*. San Francisco, 2015.
- Lantz E, **Weiss JC**, Page CD, Schmelzer J, Berg R, Yale S, Miller A, and Burmester J. Using electronic health records to predict therapeutic warfarin dose. *American Medical Informatics Association Joint Summit on Translational Science*, 2015.
- Weiss JC**, Natarajan S, and Page D. Learning to reject sequential importance steps for continuous-time Bayesian networks. *Association for the Advancement of Artificial Intelligence (AAAI)*. Austin, 2015.
- Weiss JC**. Statistical timeline analysis for electronic health records. University of Wisconsin-Madison, 2014. PhD Thesis.
- Weiss JC** and Page D. Forest-based point processes for event prediction from electronic health records. *European Conference on Machine Learning (ECML-PKDD)*, Prague, CZ, 2013.
- Weiss JC**, Natarajan S, Page D. Multiplicative forests for continuous-time processes. *Neural Information Processing Systems (NeurIPS)*, Lake Tahoe, 2012.
- Weiss JC**, Natarajan S, Peissig P, McCarty C, and Page D. Machine learning for personalized medicine: predicting primary myocardial infarction from electronic health records. *AI Magazine*, Winter 2012.
- Weiss JC**, Natarajan S, Peissig P, McCarty C, and Page D. Statistical relational learning to predict primary myocardial infarction from electronic health records. *Innovative Applications of Artificial Intelligence (IAAI)*. Toronto, 2012.
- Lovasi GS, **Weiss JC**, Hoskins R, Whitsel EA, Rice K, Erickson CF, and Psaty BM. Comparing a single-stage geocoding method to a multi-stage geocoding method: how much and where do they disagree. *International Journal of Health Geographics*.16;6:12, 2007.

## PRESENTATIONS AND ABSTRACTS

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- Kim Y and Weiss JC. Harmonic mean point processes: proportional error rate minimization for obtundation prediction. *Neural Information Processing Systems Workshop on Machine Learning for Health*. Vancouver, 2019.
- Patel A, et al. Machine learning algorithms in predicting hospital readmissions in sickle cell disease. *American Society of Hematology (ASH)*. Orlando, 2019.

- Weiss JC. High-risk and homogeneous: machine learning to identify intersections relevant for intervention. Submitted to *Neural Information Processing Systems Workshop on Machine Learning for Health*. Montreal, 2018.
- Fillmore N, Mehta A, and Weiss JC. Bicluster phenotyping of healthcare providers, procedures, and prescriptions at scale with deep learning. *Joint Workshop on Artificial Intelligence and Health*. Stockholm, 2018.
- Seymour CW, Kennedy J, Wang S, Xu Z, Chang CCH, Mi Q, Vodovotz Y, Clermont G, Viswerwaran S, Weiss JC, Cooper G, Gomez H, Kellum JA, and Angus DC. “Feasibility of sepsis phenotyping using electronic health record data during initial emergency department care.” *American Thoracic Society*. San Diego, 2018.
- Wingrove P, Liaw W, Petterson S, Weiss JC, and Bazemore A. “Prescription and procedural fingerprinting: using machine learning to classify providers”. *North American Primary Care Research Group*. Montreal, 2017.
- Chen G and Weiss JC. “Survival-Supervised Topic Modeling with Anchor Words: Characterizing Pancreatitis Outcomes.” *Neural Information Processing Systems Workshop on Machine Learning for Health (ML4H)*. San Diego, 2017.
- Chen G and Weiss JC. “Supervised Topic Models with Anchor Words for Survival Analysis and Risk Stratification of Patients with Pancreatitis.” *Society for Medical Decision Making*. Pittsburgh, 2017.
- Weiss JC and Childers S. “Spatial statistics to evaluate player contribution in ultimate.” *Sloan Sports Analytics Conference*. Cambridge, 2014.
- Weiss JC and Childers S. “Maps for reasoning in ultimate.” *ECML Workshop on Sports Analytics*. Prague, CZ, 2013.
- Weiss JC, Natarajan S, and Page D. “Learning when to reject an importance sample.” *AAAI Conference Late Breaking Papers*, Bellevue, 2013.
- Weiss JC. “Timeline analysis for predicting clinical events from electronic health records.” National Library of Medicine Informatics Training Conference. Salt Lake City, 2013. (**Best talk award**)
- Weiss JC, Natarajan S, Peissig P, McCarty C, and Page D. “Tree structures for continuous-time Bayesian networks: a scalable representation for medical diagnosis prediction.” *MathBio3:Modeling Symposium*. Madison, 2011.
- Weiss JC, Berg B, Peissig P, McCarty C, and Page D. “Clustering from overly-specific features to improve rule-based prediction.” *Neural Information Processing System (NIPS) Conference 2010 Workshop on Predictive Models In Personalized Medicine*, Vancouver, 2010.

## HONORS AND AWARDS

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Center for Machine Learning Health Early Stage Research. Sepsis phenotyping from electronic health records. With Christopher Seymour, \$300k, 1 year.	2018 – 2019
Center for Machine Learning Health Early Stage Research. Diagnosis coding engine for electronic health records. With Pradeep Ravikumar, \$300k, 1 year.	2018 – 2019
Medical Scientist Training Program, University of Wisconsin-Madison	2007 – 2016
Best Project, “Deep Roots”, University of Wisconsin-Madison Medical Education Day	2016
T32, National Library of Medicine Computation and Informatics in Biology and Medicine	2012 – 2014
Best Talk, National Library of Medicine Informatics Training Conference	2013
T32, Clinical and Translational Science Award University of Wisconsin-Madison Institute for Clinical and Translational Research	2010 – 2012

## PROFESSIONAL SERVICE

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Senior program committee for:

International Joint Conference on Artificial Intelligence (2020).

Program committee/reviewer for:

American Medical Informatics Association Annual Symposium (2016, 2019),  
Machine Learning for Health Care (2018 - 2019),  
International Conference on Learning Representations (2018 - 2019),  
Neural Information Processing Systems (2016-2019), **Top reviewer award (2018)**,  
National Institutes of Health Small Business Health Informatics Review Panel (2018),  
American Heart Association Review Panel (2018),  
National Science Foundation Review Panel (2018),  
Association for the Advancement of Artificial Intelligence (2015 - 2018),  
Artificial Intelligence and Statistics (2017, 2018),  
Neural Information Processing Systems Workshop on Machine Learning for Health (2017),  
American Medical Informatics Association Joint Summit (2017),  
Annals of Internal Medicine (2016), **Top reviewer award**,  
United Kingdom Medical Research Council (2016),  
International Joint Conference on Artificial Intelligence (2013, 2016),  
International Conference on Machine Learning (2016),  
Journal of Biomedical Informatics (2016),  
Journal of Computational and Geographical Statistics (2016),  
Machine Learning Journal (2016),  
American Medical Informatics Association Joint Summit (2015),  
Journal of Machine Learning Research (2015),  
International Journal of Epidemiology (2014),  
Journal of Artificial Intelligence Research (2013, 2014),  
Inductive Logic Programming (2014), and  
Uncertainty in Artificial Intelligence (2013).

## MEDIA

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Selected media appearances:

Modern Healthcare: “Extracting meaning from providers’ EHR notes”, 2018

Becker’s Healthcare Review: “The ins and outs of data analytics”, 2017

FiveThirtyEight: “Ultimate Frisbee is in the dark ages of analytics and it wants to escape.”, 2015

Wall Street Journal: “Ultimate Frisbee fans try to put a statistical spin on the game”, 2014