ACES 3.106, 1 University Station C0803
Austin, TX 78712
☎ (650) 452 6268
✉ joyceho@utexas.edu
http://joyceho.github.io

Joyce Ho

Education

2011–Present **Ph.D candidate in Electrical and Computer Engineering**, *University of Texas at Austin*,
Thesis: Clinically Interpretable Models for Health Data,
Advisors: Dr. Joydeep Ghosh and Dr. Sriram Vishwanath

2003–2004 **M.Eng in Electrical Engineering and Computer Science**, *Massachusetts Institute of Technology*,
Thesis: Using Activity Transitions to Trigger Proactive Messages,
Advisor: Dr. Stephen Intille

1999–2003 **B.S in Electrical Engineering and Computer Science**, *Massachusetts Institute of Technology*

Publications

Joyce C Ho, Joydeep Ghosh, Steve Steinhubl, Walter Stewart, Joshua C Denny, Bradley A Malin, and Jimeng Sun. Limestone: High-throughput candidate phenotype generation via tensor factorization. *Journal of Biomedical Informatics*, 2014.

Joyce C Ho, Joydeep Ghosh, and Jimeng Sun. Extracting phenotypes from patient claim records using nonnegative tensor factorization. In *Proceedings of the 2014 International Conference on Brain Informatics and Health (BIH)*, pages 142–151, 2014.

Joyce C Ho, Joydeep Ghosh, and Jimeng Sun. Marble: High-throughput phenotyping from electronic health records via sparse nonnegative tensor factorization. In *Proceeding of the 20th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD)*, pages 115–124, 2014.

Joyce C Ho, Cheng H Lee, and Joydeep Ghosh. Septic shock prediction for patients with missing data. *ACM Transactions on Management Information Systems (TMIS)*, 5(1):1:1–1:15, 2014.

Joyce C Ho, Carlos M Carvalho, and Joydeep Ghosh. DYNACARE-OP: Dynamic cardiac arrest risk estimation incorporating ordinal features. In *2013 International Conference on Machine Learning (ICML) Workshop: Role of Machine Learning in Transforming Healthcare*, June 2013.

Joyce C Ho, Joydeep Ghosh, and K P Unnikrishnan. Risk prediction of a multiple sclerosis diagnosis. In *2013 IEEE International Conference on Healthcare Informatics (ICHI)*, pages 175–183, 2013.

Joyce C Ho, Yubin Park, Carlos M Carvalho, and Joydeep Ghosh. DYNACARE: Dynamic cardiac arrest risk estimation. In *Proceedings of the 16th International Conference on Artificial Intelligence and Statistics (AISTATS)*, pages 333–341, 2013.

Yubin Park, Joyce C Ho, and Joydeep Ghosh. Multivariate temporal symptomatic characterization of cardiac arrest. In *Proceedings of the 35th International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, pages 3222–3225, 2013.

Joyce C Ho, Cheng H Lee, and Joydeep Ghosh. Imputation-enhanced prediction of septic shock in ICU patients. In *2012 ACM SIGKDD Workshop on Health Informatics (HI-KDD)*, 2012.

Cheng H Lee, Natalia M Arzeno, Joyce C Ho, Haris Vikalo, and Joydeep Ghosh. An imputation-enhanced algorithm for ICU mortality prediction. In *Computing in Cardiology (CinC), 2012*, pages 253–256, 2012.

John Fisher, Greg Bowers, Robert Carey, Stephanie Daveler, Kelley H Ford, Joyce Ho, Larry Lagin, Chris Lambert, Jessica Mauvais, Eric Stout, and Susan West. User interface framework for the National Ignition Facility (NIF). In *Proceedings of ICALEPCS07*, page 146, 2007.

Joyce Ho, John Fisher, Joshua Gordon, Larry Lagin, and Susan West. Java Tool Framework for Automation of Hardware Commissioning and Maintenance Procedures. In *Proceedings of ICALEPCS07*, page 547, 2007.

Joyce Ho and Stephen S Intille. Using context-aware computing to reduce the perceived burden of interruptions from mobile devices. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI)*, pages 909–918. ACM, 2005.

Work Experience

6/14–Present **Guest Researcher**, *Centers for Disease Control and Prevention*, Atlanta, GA
- Used sparse tensor factorization to discover medication usage patterns for Chronic Fatigue Syndrome
- Collaborated with domain experts and epidemiologists to evaluate the patient clusters

9/13–Present **Co-founder, Chief Data Scientist**, *Accordion Health*, Austin, TX
- Co-founded a healthcare data analytics company
- Co-authored an National Science Foundation (NSF) SBIR Phase I award winning proposal
- Co-authored an NSF SBIR Phase IB supplement proposal
- Led an award-winning 2014 Code-a-Palooza (Health Datapalooza competition) team

6/13–8/13 **Research Intern**, *Healthcare Analytics Research Group, IBM T.J.Watson Research Center*, Yorktown Heights, NY
- Conducted the pilot study that resulted in a 4-year, multi-institution NSF grant exceeding $2M
- Created an unsupervised high-throughput phenotype generation model via tensor factorization
- Collaborated with medical experts to verify the clinical quality of candidate phenotypes

6/12–8/12 **Project Coordinator, Research**, *Center for Clinical and Research Informatics, NorthShore Health System*, Evanston, IL
- Created a model to predict risk of a Multiple Sclerosis diagnosis
- Developed a cardiac arrest risk prediction model

3/09–8/11 **System Engineer**, *Global Security, Lawrence Livermore National Laboratory*, Livermore, CA
- Developed streaming and distributed algorithms to detect anomalous activity in network traffic

9/06–3/09 **Maintenance and Commissioning Tool Lead**, *National Ignition Facility, Lawrence Livermore National Laboratory*, Livermore, CA
- Managed a group of developers
- Planned software releases, tracked schedules, prioritized work, and addressed technical issues
- Interviewed candidates for positions within the Integrated Computer Controls System group

9/04–9/06 **Integrated Computer Controls System Engineer**, *National Ignition Facility, Lawrence Livermore National Laboratory*, Livermore, CA
- Designed, implemented and tested algorithms to automate laser system calculations and verifications

5/03–8/03 **Software Development Intern**, *Microsoft*, Redmond, WA
- Designed and implemented the Microsoft ActiveSync 4.0 Device Sync Setup Wizard

Academic Experience

9/11–Present **Research Assistant**, *The University of Texas at Austin*,
Advisors: Dr. Joydeep Ghosh and Dr. Sriram Vishwanath

- Aided the writing of a 4-year, multi-institution NSF Smart Connected Health grant exceeding $2M
- Developed a nonnegative tensor factorization model to generate phenotypes from electronic health records
- Created a dynamic cardiac arrest risk prediction model to track individual patient's cardiac risk
- Participated in the PhysioNet 2012 challenge and placed in the top 10
- Developed a septic shock prediction model that generalizes to patients with missing data

8/03–8/04 **Research Assistant**, *Massachusetts Institute of Technology*,
Advisor: Dr. Stephen Intille

- Developed a real-time activity detection system using wireless accelerometers, a receiver, and a PocketPC
- Designed a rechargeable battery pack to power the PocketPC and wireless receiver

6/02–8/02 **Research Assistant**, *Stanford University*,
Advisor: Dr. Terry Winograd

- Designed and implemented voice input for the Interactive Workspace project
- Assisted the development of one-bit LED receivers controlled by a remote source

Teaching Experience

1/14–5/14 **Teaching Assistant**, *The University of Texas at Austin*, Austin, Advanced Predictive Modeling

1/13–5/13 **Teaching Assistant**, *The University of Texas at Austin*, Austin, Data Mining

Service

Reviewer, AMIA 2015 Joint Summits on Translational Science

PC Member, AMIA 2014 Workshop on Data Mining for Medical Informatics: Electronic Phenotyping

Reviewer, Data Mining and Knowledge Discovery

Reviewer, Transactions on Knowledge Discovery from Data

PC Member, BigMUD 2013: ICDM Workshop on Mining and Understanding from Big Data

Awards & Honors

Awards Dr. Brooks Carlton Fowler Endowed Presidential Graduate Fellowship in Electrical and Computer Engineering (2014)

KDD Student Travel Award Winner (2014)

Innovative Signal Analysis Fellowship (2012)

Cockrell School of Engineering Doctoral Fellowship (2011-2014)

Microelectronics and Computer Development Fellowship (2011)

Honors Tau Beta Pi, Eta Kappa Nu

Skills

Languages R, Python, Javascript, Java, C++, SQL, NoSQL, Matlab, Perl