

Eric X. Wang, Ph.D.

Researcher: AI at scale and on demand
NLU, Deep Learning, Optimization
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Experience

Principal Data Scientist

Chegg, October 2017 - Present

- Lead architect and developer of Chegg's core Knowledge Understanding AI.
- Responsible for design and deployment of scalable Deep Learning models into product pipelines.
- Works closely with senior leadership to help shape technical and ML strategy.
- Provides mentorship, advice, and guidance to junior team members.

Staff Data Scientist, NLP

Chegg, November 2015 - October 2017

- Proposed and developed Chegg's state-of-the-art natural language understanding engine.
- Led cross-functional effort in enterprise-wide containerized ML algorithm deployment.
- Introduced scalable Deep Learning techniques to the organization.

Principal Investigator & Team Lead, Robust Analysis via Semantic Embeddings

Lawrence Livermore National Laboratory, October 2014 - October 2015

- Led a \$2M project focused on developing novel NLP algorithms at massive scales.
- Responsible for shaping LLNL's NLP and machine intelligence strategy and vision.
- Research contributions directly resulted in \$600K of funding from outside clients in FY2015.

Applied Statistician, Computational Engineering Division

Lawrence Livermore National Laboratory, June 2013 - October 2015

- Researched NLP algorithms and deep learning at scale.
- Key contributor in developing the world's largest (at the time) DL model, with 15B parameters.
- Received LLNL Engineering Institutional Award in 2015 (3 recipients out of approximately 1400).

Visiting Research Professor, Department of Mathematics

United States Naval Academy, July 2012-June 2013

- Developed novel Bayesian model to characterize laser propagation in atmospheric turbulence.
- Taught Calculus-II to undergraduates, received excellent student feedback.

Applied Research Consultant

Signal Innovations Group (BAE), March 2008 - July 2012

- Contributed to highly advanced target tracking algorithm in video.
- Developed novel activity and anomaly detection algorithms.

Education

Ph.D. Electrical and Computer Engineering, Duke University, 2012

Dependent Hierarchical Bayesian Models for Joint Analysis of Social Networks and Associated Text
Advisor: Dr. Lawrence Carin

B.S. Electrical and Computer Engineering The Ohio State University, 2006

Fields of Expertise

Natural Language Understanding, Deep Learning, Nonparametric Hierarchical Bayesian Models, Topic Models, Matrix Decomposition, Factor Analysis, Regression, Classification, Spatial–Temporal Models

Programming Languages and Tools

Python (Numpy/Scipy, Keras, spaCy, Tensorflow, NLTK, Tornado/Flask, Databricks/PySpark), Scala (Spark), AWS EC2/ECS, HTML, CSS, jQuery

Publications

Journal Articles

E. Wang, S. Avramov-Zamurovic, R. Watkins, C. Nelson and R. Malek-Madani. PDF Estimation of Laser Light Scintillation via Bayesian Mixtures. *Journal of the Optical Society of America*, 2014.

E. Wang, E. Salazar, D. Dunson and L. Carin. Spatio-temporal Modeling of Legislation and Votes. *Bayesian Analysis*, 2013.

I. Pruteanu-Malinici, L. Ren, J. Paisley, E. Wang and L. Carin. Hierarchical Bayesian Modeling of Topics in Time-Stamped Documents. *IEEE Trans. Pattern Analysis Machine Intelligence*, 2010.

Proceedings

T.S. Brandes, E. Wang. Dynamic Bayesian Activity Modeling with Multimodal Observations. *ICASSP*, 2013.

E. Wang, J. Silva, R. Willett, D. Dunson and L. Carin. Time-Evolving Modeling of Social Networks. *ICASSP*, 2011.

E. Wang, J. Silva, R. Willett and L. Carin. Dynamic Relational Topic Model for Social Network Analysis with Noisy Links. *SSP*, 2011.

E. Wang, J. Silva, D. Liu, D. Dunson, L. Carin. Joint Analysis of Time-Evolving Binary Matrices and Associated Documents. *NIPS*, 2010.

E. Wang and L. Carin. A Space and Time Dependent Model for Unsupervised Activity Perception in Video. *NIPS Workshop on Topic Modeling*, 2009.

E. Wang, J. Silva and L. Carin. Compressive Particle Filtering for Target Tracking. *SSP*, 2009.

L. Li, M. Zhou, E. Wang and L. Carin. Joint Dictionary Learning and Topic Modeling for Image Clustering. *ICASSP*, 2011.

Q. An, C. Wang, I. Shterev, E. Wang, D. Dunson and L. Carin. Hierarchical Kernel-Stick-Breaking Processing for Multi-Task Image Analysis. *ICML*, 2008.

Talks and Presentations

Robustly Embedding Knowledge in Semantic Vector Spaces. Current Challenges in Computing Conference. Napa, California. December, 2014.

Analysis of Light Scattering in Turbulence via Bayesian Mixtures. Directed Energy Professional Society Annual Meeting. Albuquerque, New Mexico. November 2012.

Spatio-Temporal Factor Analysis Topic Models for Roll Call Data. Lawrence Livermore National Laboratory. Livermore, California. March 2012.

A Spatio-Temporal Factor Analysis Topic Model for Roll Call Data. United States Naval Academy. Annapolis, Maryland. February 2012.

Time-Evolving Modeling of Social Networks. ICASSP. Prague, Czech Republic. May 2011.

Dynamic Relational Topic Model for Social Network Analysis with Noisy Links. SSP. Nice, France. June 2011.

Joint Analysis of Time-Evolving Binary Matrices and Associated Documents. NIPS. Vancouver, Canada. December 2010.

A Space and Time Dependent Model for Unsupervised Activity Perception in Video. NIPS Workshop on Topic Modeling. Whistler, Canada. December 2009.

Compressive Particle Filtering for Target Tracking. SSP. Cardiff, England. August 2009.

Teaching

SM122, Calculus-II, USNA Spring 2013

ECE180, Advanced Digital Signal Processing, Duke University Fall 2008 & Fall 2009
Awarded 2009-2010 Charles Rowe Vail Memorial Outstanding Graduate Teaching Award

Recent Institutional Service

Board Member, Board of Directors, Institute for Humanitarian Informatics
Georgetown University

Coordinator and Lead, Data Heroes Summer Scholar Program
Lawrence Livermore National Laboratory