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**Education** Massachusetts Institute of Technology Cambridge, MA  
Ph.D., Dept. of Electrical Engineering & Computer Science, Laboratory for  
Information & Decision Systems, June 2005.  
Thesis: Inference in Sensor Networks: Graphical Models and Particle Methods

Massachusetts Institute of Technology Cambridge, MA  
M.S., Dept. of Electrical Engineering & Computer Science, August 2000.  
Thesis: Maximally Informative Subspaces: Nonparametric Estimation for Dynamical  
Systems

California Institute of Technology Pasadena, CA  
B.S. with Honors, Electrical Engineering and Mathematics, June 1998.

**Awards** Outstanding Student Paper Award NIPS Conference, 2004  
Best Student Paper Award IPSN Conference, 2004

**Research & Employment** University of California, Irvine Irvine, CA  
Assistant Professor Nov. 2007-present

Toyota Technological Institute Chicago, IL  
Research Assistant Professor 2007

UC Irvine, Dept. of Computer Science Irvine, CA  
Postdoctoral Researcher, Smyth DataLab 2005-2006

MIT, Dept. of Electrical Engineering & Computer Science Cambridge, MA  
Advisors: Alan Willsky and John Fisher 2000-2005

AlphaTech Burlington, MA  
Supervisor: Joel Douglas Summer 2000

MIT, Dept. of Electrical Engineering & Computer Science Cambridge, MA  
Advisors: Alan Willsky and John Fisher 1998-2000

<b>Teaching</b>	University of California at Irvine	Irvine, CA
	Advanced Methods for Graphical Models (CS295)	Winter 2008
	Probabilistic Learning (CS274A)	Spring 2008
	Research Problems in Machine Learning (CS295)	Fall 2008
	Introduction to Artificial Intelligence (CS271)	Winter 2009
	Probability in Computer Science (CS177)	Spring 2009
	Machine Learning and Data Mining (CS178)	Winter 2010
	Probabilistic Learning (CS274A)	Winter 2010
	Advanced Topics in Graphical Models (CS295)	Spring 2010
	Duke University, Talent Identification Program (TIP)	Durham, NC
	Instructor, Algorithms	Summer 2001
	Massachusetts Institute of Technology	Cambridge, MA
	Teaching Assistant, Digital hardware labs (6.111 & 6.115)	1998-1999
	California Institute of Technology	Pasadena, CA
	Teaching Assistant, Embedded systems hardware/software	1996-1998
	Duke University, Talent Identification Program (TIP)	Durham, NC
	Teaching Assistant, Discrete math and Number theory	Summers 1994-1996

## Publications

### Theses

*Inference in Sensor Networks: Graphical Models and Particle Methods.*  
 Doctoral Thesis, MIT, 2005.

*Maximally Informative Subspaces: Nonparametric Estimation for Dynamical Systems.* Master's Thesis, MIT, 2000.

### Journal Publications

- [J9] Liu, Lin, Andersen, Smyth, Ihler; *Estimating replicate time shifts using Gaussian process regression.* *Bioinformatics* **26**(6), pp. 770-776, Mar. 2010.
- [J8] Chudova, Ihler, Lin, Andersen, Smyth; *Bayesian detection of non-sinusoidal periodic patterns in circadian expression data.* *Bioinformatics* **25**(23), pp. 3114-3120, Dec. 2009.
- [J7] Lin et al.; *Circadian clock genes contribute to the regulation of hair follicle cycling.* *PloS Genetics* **5**(7), July 2009.
- [J6] Ihler, Hutchins, Smyth; *Learning to detect events with Markov-modulated Poisson Processes.* *ACM Transactions on Knowledge Discovery in Data*, pp. **1**(3), pp. 13:1-13:23, Dec. 2007.
- [J5] Ihler, Kirshner, Ghil, Robertson, Smyth; *Graphical Models for Statistical Inference and Data Assimilation.* *Physica D*, **230**(1-2), pp. 72-87, June 2007
- [J4] Cetin, Chen, Fisher, Ihler, Moses, Willsky; *Distributed Fusion in Sensor Networks: A Graphical Models Perspective.* *IEEE Signal Processing Magazine* **23**(4), pp. 43-55, July 2006.

- [J3] Ihler, Fisher, Willsky; *Loopy Belief Propagation: Convergence and Effects of Message Errors*. Journal of Machine Learning Research **6**, pp. 905-936, May 2005.
- [J2] Ihler, Fisher, Moses, Willsky; *Nonparametric Belief Propagation for Self-Localization of Sensor Networks*. Journal of Selected Areas in Communications **23**(4), pp. 809-819, April 2005.
- [J1] Ihler, Fisher, Willsky; *Nonparametric Hypothesis Tests for Statistical Dependency*. IEEE Transactions on Signal Processing **52**(8), pp. 2234-2249, August 2004.

### Conference Publications

- [C27] Liu, Ihler; *Negative tree-reweighted belief propagation*. In Uncertainty in Artificial Intelligence (UAI), July 2010.
- [C26] Yarkony, Fowlkes, Ihler; *Covering trees and lower bounds on quadratic assignment*. In Computer Vision and Pattern Recognition, pp. 887-894, July 2010.
- [C25] Asuncion, Liu, Ihler, Smyth; *Particle filtered MCMC-MLE with connections to contrastive divergence*. In Int'l Conference on Machine Learning, pp. 47-54, June 2010.
- [C24] Asuncion, Liu, Ihler, Smyth; *Learning with blocks: composite likelihood and contrastive divergence*. In AI & Statistics, JMLR:W&CP 9, pp. 33-40, April 2010.
- [C23] Ihler, Frank, Smyth; *Particle-based variational inference for continuous systems*. In Neural Information Processing Systems, pp. 826-834, Dec. 2009.
- [C22] Bickson, Ihler, Avissar, Dolev; *A low-density lattice decoder via nonparametric belief propagation*. In Allerton Conf. On Comm., Control, and Comput., Sept. 2009.
- [C21] Acar, Ihler, Mettu, Sumer; *Adaptive updates for MAP configurations with applications to bioinformatics*. In IEEE Workshop on Statistical Signal Processing (SSP), pp. 413-416, Aug. 2009.
- [C20] Ihler, McAllester; *Particle Belief Propagation*. In AI & Statistics, JMLR W&CP 5, pp. 256-263, April 2009.
- [C19] Hutchins, Ihler, Smyth; *Probabilistic Analysis of a Large Scale Urban Traffic Sensor Data Set*. In Knowledge Discovery in Sensor Data Workshop, LNCS 5840, pp. 94-114, Aug. 2008.
- [C18] Porteous, Newman, Ihler, Asuncion, Smyth, Welling. *Fast Collapsed Gibbs Sampling for Latent Dirichlet Allocation*. In Knowledge Discovery & Data Mining (KDD), pp. 569-577, Aug. 2008
- [C17] Acar, Ihler, Mettu, Sumer; *Adaptive Inference for General Graphical Models*. In Uncertainty in Artificial Intelligence, pp. 1-8, July 2008.
- [C16] Acar, Ihler, Mettu, Sumer; *Adaptive Bayesian Inference*. In Neural Information Processing Systems 20, pp. 1441-1448, Dec. 2007.

- [C15] Hutchins, Ihler, Smyth; *Modeling Count Data from Multiple Sensors: A Building Occupancy Model*. In Computational Advances in Multi-sensor Adaptive Processing, pp. 241-244, Dec. 2007.
- [C14] Ihler; *Accuracy Bounds for Belief Propagation*. In Uncertainty in Artificial Intelligence, pp. 183-190, July 2007.
- [C13] Ihler, Smyth; *Learning Time-Intensity Profiles of Human Activity using Non-Parametric Bayesian Models*. In Neural Information Processing Systems19, pp. 625-632, Dec. 2006.
- [C12] Porteous, Ihler, Smyth, Welling; *Gibbs Sampling for (Coupled) Infinite Mixture Models in the Stick Breaking Representation*. In Uncertainty in Artificial Intelligence, pp. 385-392, July 2006.
- [C11] Ihler, Hutchins, Smyth; *Event Detection with Time-Varying Poisson Processes*. In Knowledge Discovery and Data Mining (KDD), pp. 207-216, Aug. 2006.
- [C10] Ihler, Fisher, Willsky; *Particle Filtering Under Communications Constraints*. In IEEE Workshop on Statistical Signal Processing (SSP), pp. 89-94, July 2005.
- [C9] Siracusa, Tieu, Ihler, Fisher, Willsky; *Estimating Dependency and Significance for High-Dimensional Data*. In Int'l Conf. on Acoustics, Speech, and Signal Processing, pp. v/1085-1088, May 2005.
- [C8] Ihler, Fisher, Willsky; *Message Errors in Belief Propagation*. In Neural Information Processing Systems 17, pp. 609-616, Dec. 2004. (*Outstanding Student Paper Award*)
- [C7] Ihler, Fisher, Moses, Willsky; *Nonparametric Belief Propagation for Sensor Self-Calibration*. In Int'l Conference on Acoustics, Speech, and Signal Processing, pp. iii:861-864, May 2004.
- [C6] Ihler, Fisher, Moses, Willsky; *Nonparametric Belief Propagation for Self-Calibration in Sensor Networks*. In Information Processing in Sensor Networks, pp. 225-233, April 2004. (*Best Student Paper Award*)
- [C5] Ihler, Sudderth, Freeman, Willsky; *Efficient Multiscale Sampling from Products of Gaussian Mixtures*. In Neural Information Processing Systems 16, Dec. 2003.
- [C4] Sudderth, Ihler, Freeman, Willsky; *Nonparametric Belief Propagation*. In Computer Vision and Pattern Recognition, pp. 1:605-612, June 2003.
- [C3] Ihler, Fisher, Willsky; *Hypothesis Testing over Factorizations for Data Association*. In Information Processing in Sensor Networks, pp. 239-253, April 2003.
- [C2] Ihler, Fisher, Willsky; *Nonparametric Estimators for Online Signature Authentication*. In Int'l Conf. on Acoustics, Speech, and Signal Processing, pp. 3473-3476, May 2001.
- [C1] Fisher, Ihler, Viola; *Learning Informative Statistics: A Nonparametric Approach*. In Neural Information Processing Systems 12, pp. 900-906, Dec. 1999.

## Book Chapters

- [BC1] Cetin, Chen, Fisher, Ihler, Kreidl, Moses, Wainwright, Williams, Willsky;  
“Graphical Models and Fusion in Sensor Networks”. *Wireless Sensor Networks:  
Signal Processing and Communications*, pp. 215-250, Wiley, Dec. 2007.

## Technical Reports

- [R4] Ihler, Newman; *Bounding Sample Errors in Approximate Distributed Latent  
Dirichlet Allocation*. UC Irvine ICS Technical Report 09-06, pp. 1-9.

## Other professional activities

**Publicity Chair**, AI & Statistics Conference 2009

**Journal Reviewing:** Machine Learning, Journal of Machine Learning Research, IEEE Comm.  
Mag., IEEE Trans. Sig. Proc., IEEE Trans. Info. Theory, IEEE Trans. Img. Proc., IEEE Trans.  
Veh. Tech., IEEE Trans. Intel. Trans. Sys., Bioinformatics

**Conference Program Committees:** UAI (2006-present), ICML (2008-present), AISTats (2009-  
present), CVPR (2008-present), ECCV (2008-present), ISIT (2008)

**Other Reviewing:** NIPS (2003-present)