

Jason Pacheco

Machine Learning: Graphical Models, Approximate Inference, Information Planning

Signal Processing: Nonlinear Dynamical Systems, Image/Video Analysis, Motion/Tracking

Applications: Protein Structure, Gene Interaction Discovery, Articulated Object Tracking

Education

- Doctor of Philosophy**, Brown University Spring 2016
Computer Science
Thesis: *Variational Approximations with Diverse Applications*
Supervisor: Erik Sudderth
- Master of Science**, Brown University Spring 2007
Computer Science
Thesis: *Temporal Decomposition for Online Multisensor Multitarget Tracking*
Supervisor: Meinolf Sellmann
- Bachelor of Science**, University of Massachusetts Dartmouth Spring 2003
Computer Science

Publications

Refereed Publications

- E. Mohammadreza, J. Pacheco, W. Li, J. Lee Hu, H. Chen. “Binary Black-Box Attacks Against Static Malware Detectors with Reinforcement Learning in Discrete Action Space.” *IEEE S&P Deep Learning and Security Workshop*. May 2021.
- S. Zheng, D. S. Hayden, J. Pacheco, J. Fisher III. “Sequential Bayesian Experimental Design with Variable Cost Structure.” *Advances in Neural Information Processing Systems*. 2020.
- D. S. Hayden, J. Pacheco, J. Fisher III. “Nonparametric Object and Parts Modeling with Lie Group Dynamics.” *Conference on Computer Vision and Pattern Recognition*. 2020.
- J. Belden, M. M. Mansoor, A. Hellum, S. R. Rahman, A. Meyer, C. Pease, J. Pacheco, S. Koziol and T. T. Truscott. “How vision governs the collective behaviour of dense cycling pelotons.” *Journal of the Royal Society Interface*. 2019.
- J. Pacheco and J. Fisher III. “Variational Information Planning for Sequential Decision Making.” *International Conference on Artificial Intelligence and Statistics*. 2019.
- S. Zheng, J. Pacheco, J. Fisher III. “A Robust Approach to Sequential Information Theoretic Planning.” *International Conference on Machine Learning*. 2018.
- D. Milstein, J. Pacheco, L. Hochberg, J. Simeral, B. Jarosiewicz, E. Sudderth. “Multiscale Semi-Markov Dynamics for Intracortical Brain-Computer Interfaces.” *Advances in Neural Information Processing Systems*. 2017.
- J. Pacheco and E. B. Sudderth. “Proteins, Particles, and Pseudo-Max-Marginals: A Submodular Approach.” *International Conference on Machine Learning*. 2015.
- J. Pacheco, S. Zuffi, M. J. Black and E. B. Sudderth. “Preserving Modes and Messages via Diverse Particle Selection.” *International Conference on Machine Learning*. 2014.
- J. Pacheco and E. B. Sudderth. “Minimization of continuous Bethe approximations: A positive variation.” *Advances in Neural Information Processing Systems*. 2012.

J. Pacheco and E. Sudderth. “Improved variational inference for tracking in clutter.” *IEEE Statistical Signal Processing*. 2012.

Technical Reports and Working Papers

- R. Chen, J. Pacheco, D. Burch and J. Fisher III. “Bayesian Analysis of Offshore Oil Fields.” *In Preparation: MIT Technical Report*. 2019.
- J. Pacheco, S. Zuffi, M. Black and E. B. Sudderth. “Diverse Particle Max-Product.” *In submission: Journal of Machine Learning Research*. 2019.
- R. Kothapa, J. Pacheco and E. B. Sudderth. “Max-product particle Belief Propagation.” *Brown University Technical Report*. 2011.

Research Grants

Robust MAP Inference for Continuous Graphical Models

In-House Laboratory Independent Research: Naval Undersea Warfare Center
\$225,000, Principal Investigator, Oct. 2013 to Sep. 2016

Learning Models of Multimodal Sensors

In-House Laboratory Applied Research: Naval Undersea Warfare Center
\$100,000, Principal Investigator, Oct. 2016 to Sep. 2017

Awards

Brown University Dept. of Computer Science Dissertation Fellowship	2015
Naval Undersea Warfare Center Fellowship	2014
Naval Undersea Warfare Center Fellowship	2007

Teaching and Advising

Regular Courses

CSC 535: Introduction to Probabilistic Graphical Models	Fall 2020
CSC 665-1: Advanced Topics in Probabilistic Graphical Models	Fall 2019
CSCI 2950-P: Probabilistic Graphical Models (Graduate TA)	Spring 2013
CSCI 2950-P: Applied Bayesian Nonparametrics (Graduate TA)	Fall 2011
CSCI 1950-F: Introduction to Machine Learning (Graduate TA)	Spring 2011

Professional Service

Program Committee

Advances in Neural Information Processing Systems (NIPS)
International Conf. on Machine Learning (ICML)
International Conf. on Artificial Intelligence and Statistics (AISTATS)
IEEE International Conf. on Computer Vision (ICCV)
IEEE Conf. on Computer Vision and Pattern Recognition (CVPR)

Journal Reviewer

IEEE Transactions on Signal Processing
IEEE Transactions on Aerospace Engineering