

Vinayak A.P. Rao

Department of Statistics,
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Curriculum Vitae

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Academic background

Assistant Professor,
Dept. of Statistics, Purdue University
August 2014-present

Postdoctoral research associate,
Dept. of Statistical Science, Duke University
November 2012-July 2014

PhD in Machine Learning,
Gatsby Computational Neuroscience Unit, University College London, June 2012

Research interests

Bayesian nonparametrics, machine learning, Markov chain Monte Carlo methods, continuous-time stochastic models, point processes, mixture modeling, deterministic approximations for posterior inference, neuroscience

Awards

- Savage Award 2015 (Theory and Methods), International Society for Bayesian Analysis
- Bogue research fellowship
- Outstanding student in Electrical Engineering, Syracuse University, 2007

Book Chapters

- Rao, V.A. (2015). Dirichlet Process mixtures and nonparametric Bayesian approaches to clustering. *The Handbook of Cluster Analysis*, editors Roberto Rocci, Fionn Murtagh, Marina Meila, Christian Hennig. Chapman & Hall/CRC.

Refereed Publications

- Rao, V.A., Lin, L., and Dunson, D. B. (2016) Data-augmentation for models based on rejection sampling. *Biometrika* (Accepted).
- Lin, L., Rao, V.A., and Dunson, D. B. (2016). Bayesian inference on the Stiefel manifold. *Statistica Sinica* (Accepted).
- Lian, W., Henao, R., Rao, V.A., Lucas, J., and Carin, L. (2015). A multitask point process predictive model. *Int. Conf. on Machine Learning*.
- Yuan, X., Rao, V.A., Han, S., and Carin, L. (2014). Multiscale shrinkage with Lévy processes. *IEEE Transactions in Signal Processing*.
- Lian, W., Rao, V.A., Eriksson, B., and Carin, L. (2014). Modeling correlated arrival events with latent semi-Markov processes. *Int. Conf. on Machine Learning*.
- Rao, V.A. and Teh, Y.W. (2013). MCMC inference for Markov jump processes and extensions. *Journal of Machine Learning Research* 14.
- Carlson, D., Rao, V.A., Vogelstein, J., and Carin, L. (2013). Real-time inference for a Gamma process model of neural spiking. *Adv. in Neural Information Proc. Sys.* 26 .

- Chen, C., **Rao, V.A.**, Buntine, W. and Teh, Y.W. (2013). Dependent normalized random measures. *Int. Conf. on Machine Learning*. (**Oral presentation**).
- **Rao, V.A.** and Teh, Y.W. (2012). MCMC for continuous-time discrete-state systems. *Adv. in Neural Information Proc. Sys.* 25.
- Petralia, F., **Rao, V.A.** and Dunson, D. (2012). Repulsive mixtures. *Adv. in Neural Information Proc. Sys.* 25.
- **Rao, V.A.** and Teh, Y.W. (2011). Gaussian process modulated renewal processes. *Adv. in Neural Information Proc. Sys.* 24.
- **Rao, V.A.** and Teh, Y.W. (2011). Fast MCMC inference for Markov jump processes and continuous time Bayesian networks. *The 27th Conf. on Uncertainty in AI*
- **Rao, V.A.** and Teh, Y.W. (2009). Spatial normalized Gamma processes. *Adv. in Neural Information Proc. Sys.* 22. (**Spotlight presentation**).
- Howard, M.W., Jing, B., **Rao, V.A.**, Provyn, J.P. and Datey, A.V. (2008). Bridging the gap: Transitive associations between items presented in similar temporal contexts. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, Vol 35(2).
- **Rao, V.A.** and Howard, M.W. (2007). Retrieved context and the discovery of semantic structure. *Adv. in Neural Information Proc. Sys.* 20. (**Spotlight presentation**).

- Working Papers**
- **Rao, V.A.**, Adams, R.P. and Dunson, D.B. (2013). Bayesian inference for Matérn repulsive processes. *Revision submitted*.
 - **Rao, V.A.**, Sudderth, E., and Teh, Y. W. (2011). Expectation propagation for Dirichlet process mixture models. *Technical report, Gatsby Computational neuroscience unit, UCL*.

Professional Activities

Senior program committee for AISTATS 2016
 Publications chair in AISTATS 2015 organizing committee
 Grant reviewer for the National Science Center, Poland

Reviewing

Journal of Machine Learning Research, Journal of the Royal Statistical Society, Journal of the American Statistical Association, Bayesian Analysis, IEEE Trans. on Pattern Analysis and Machine Intelligence, Machine Learning Journal, Statistics and Computing, Journal of Artificial Intelligence Research, Statistics and Probability Letters, Neural Information Processing Systems, International Conference on Machine Learning, Artificial Intelligence and Statistics, Uncertainty in Artificial Intelligence, International Joint Conferences on Artificial Intelligence, Association for Advancement of Artificial Intelligence

Teaching

Spring 2015, 2016, Purdue Stat598Z: Intro. to Computing for Statistics
 Fall 2014, 2015, Purdue Stat545: Intro. to Computational Statistics

Talks

December 2015	CMStatistics conference, London	Invited
October 2015	The Pennsylvania State University, Statistics	Colloquium
August 2015	Joint Statistical Meetings, Seattle	Invited
July 2015	Purdue University, ISIM workshop	Invited
April 2015	Univ. of Texas (Austin), Statistics	Colloquium
February 2014	University College London, Gatsby Unit	Colloquium
February 2014	Virginia Tech, Statistics	Colloquium
February 2014	Purdue University, Statistics	Colloquium
January 2014	Univ. of Chicago, Booth School of Business	Colloquium
January 2014	University of Michigan (Ann Arbor), Statistics	Colloquium
January 2014	University of Chicago, Statistics	Colloquium
January 2014	The Ohio State University, Statistics	Colloquium
September 2013	Duke University, iiD	Colloquium
June 2013	9th conference on Bayesian nonparametrics, Amsterdam, Netherlands	Invited talk
February 2013	NCSU, Statistics	Colloquium
November 2012	Duke University, Statistics	Colloquium
June 2012	University College London, CSML	Colloquium
October 2011	Brown University, CS	Colloquium
November 2011	Univ. of Cambridge, Machine Learning Group	Colloquium
June 2011	8th workshop on Bayesian nonparametrics, Veracruz, Mexico	Contrib talk
November 2010	Univ. of Cambridge, Machine Learning Group	Colloquium
May 2007	Soc. for Math. Psychology, 40th Meeting	Contrib talk
2007-2012	University College London, Gatsby Unit	Many talks

**Other
experience**

Machine Learning Summer School, (University of Cambridge, UK, August 2009)
 Research Assistant, Syracuse University, NY, (August 2005 - May 2007)
 Design Engineer, Paxonet Comm. Inc., India (now Conexant Systems)
 (August 2003 - July 2005)