

MAJA RITA RUDOLPH

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EDUCATION

Columbia University PhD student in Computer Science	2015 - Present New York, NY
Columbia University M.S. in Electrical Engineering	2013 - 2015 New York, NY
Massachusetts Institute of Technology (MIT) B.S. in Mathematics, GPA: 4.7/5.0	2010 - 2013 Cambridge, MA
Delaware State University Mathematics, GPA: 4.0/4.0 Full Athletic Scholarship, transferred to MIT	2009 - 2010 Dover, DE

RESEARCH EXPERIENCE

Columbia University, Department of Computer Science Graduate Research Assistant Advisor: Prof. David Blei	2015 - Present New York, NY
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- My research experience includes: Probabilistic modeling, approximate inference, and collaborative filtering with applications to text, recommendation systems, e-commerce, and analysis of neural data.
- I contribute to Edward, a python library for probabilistic modeling, posterior inference, and model criticism.

PUBLICATIONS

- **M. Rudolph**, F. Ruiz, and D. Blei. "Structured Embedding Models for Grouped Data", 2017
- **M. Rudolph** and D. Blei. "Dynamic Embeddings for Language Evolution", *arXiv:1703.08052*, 2017
- **M. Rudolph**, F. Ruiz, S. Mandt, and D. Blei. "Exponential Family Embeddings", In *NIPS*, 2016
- D. Tran, A. Kucukelbir, A. Dieng, **M. Rudolph**, D. Liang, D. Blei, "Edward: A library for probabilistic modeling, inference, and criticism", *arXiv:1610.09787*
- **M. Rudolph**, J. Ellis, and D. Blei. "Objective Variables for Probabilistic Revenue Maximization in Second-Price Auctions with Reserve", In *proceedings of WWW*, 2016
- **M. Rudolph**, A. Hertzmann, M. Hoffman. "A Joint Model for Who-to-Follow and What-to-View Recommendations on Behance", In *Workshop on Modeling Social Media, WWW*, 2016
- **M. Rudolph**, D. Blei. "The Dirichlet-Gamma Filter for Discovery of Neural Ensembles and their Temporal Dynamic", In *Workshop on Statistical Analysis of Neural Data, NIPS*, 2015
- **M. Rudolph**, S. Gultekin, J. Paisley, S. Chang. "Probabilistic Canonical Tensor Decomposition for Predicting User Preference", In *Workshop for Personalization: Applications and Methods, NIPS*, 2014

SKILLS

Research Probabilistic Modeling, Approximate Inference, Recommendation Systems
Coding Python, Tensorflow, C++, awk, Stan, Matlab, OpenCV, Latex, SQL, Javascript
Languages German, English, Hebrew (fluent); Latin (proficient); French, Spanish (intrmd.)

INVITED TALKS

- *Dynamic Bernoulli Embeddings for Language Evolution*, CSDP workshop on Real World Impacts of Political and Legal Texts, April 2017, Princeton University, Princeton, NJ.
- *Tutorial: Automating Machine Learning with Tensorflow and Edward*, March 2017, Riken Institute, Tokyo, Japan.
- *Exponential Family Embeddings*, March 2017, Riken Institute, Tokyo, Japan.
- *Exponential Family Embeddings*, Machine Learning Reading Group, October 2016, Princeton University, Princeton, NJ.
- *Tutorial: Applied Probabilistic Programming*, Janelia Machine Learning and Computer Vision Workshop, October 2016, Howard Hughes Medical Institute, Ashburn, VA.
- *Exponential Family Embeddings*, Janelia Machine Learning and Computer Vision Workshop, October 2016, Howard Hughes Medical Institute, Ashburn, VA.

WORK EXPERIENCE

Adobe Creative Technologies Lab
Research Intern

Summer 2015
San Francisco, CA

- Formulated a novel model to capture the viewing behavior and the social network of Behance users
- Derived and implemented an efficient inference algorithm to fit the model to data
- Studied the quality of "who to follow" and "what to view" recommendations of the model

SAP Innovation Center
Software Intern

Spring 2013
Potsdam, Germany

- Contributed to efforts of leveraging in-memory database technology for life science research
- Evaluated and compared the performance of machine learning algorithms in R and C++
- Implemented an interactive decision tree visualization tool
- Studied and presented various topics in bioinformatics including protein matching and structural search of chemical compounds

TEACHING EXPERIENCE

Columbia University, Department of Computer Science
Teaching Assistant, *Foundations of Graphical Models*

Fall 2015/16
New York, NY

- Advised students on machine learning projects during weekly office hours
- Helped faculty with the preparation and grading of homeworks

MIT, Department of Electrical Engineering and Computer Science
Lab Assistant, *Mathematics for Computer Science Course*

Fall 2011
Cambridge, MA

- Led and supported groups of 6-8 students during in-class problem solving sessions
- Helped faculty with the preparation of class materials

Local Primary Schools
Tutor and Mentor

2003-2006
Tuebingen, Germany

- Volunteered 3 hours per week tutoring socially disadvantaged children
- Supported the students with migration background to overcome language barriers
- Motivated discouraged children to do their homework and take active part in their education

HONORS AND AWARDS

- C. Hurd Scholarship for Mathematical Sciences, MIT
- Full Athletic Scholarship, Delaware State University
- German National Champion in Bridge, Category Schools

2010 - 2012
2009 - 2010
2007