Avneesh Singh Saluja

CONTACT
INFORMATION

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RESEARCH
INTERESTS

Probabilistic models for natural language processing; statistical machine translation; distributed data processing; machine learning.

EDUCATION

Carnegie Mellon University, Pittsburgh, PA

Ph.D. in Electrical & Computer Engineering, September 2015

- Dissertation: "Low-dimensional Context-dependent Translation Models"
- Advisors: Chris Dyer & Ian Lane
- Affiliated with Language Technologies Institute, School of Computer Science
- Recipient, Bertucci Fellowship (College of Engineering), 2015
- Recipient, eBay Graduate Fellowship, 2014

Carnegie Mellon University, Pittsburgh, PA

M.S. in Electrical & Computer Engineering, May 2013

- Graduate coursework in statistics, machine learning, learning theory, speech recognition, probabilistic graphical models, structured prediction, optimization.

Stanford University, Stanford, CA

B.S. *with Distinction* in Electrical Engineering, April 2007

- Signal processing concentration
- President's Award for Academic Excellence, Tau Beta Pi

PROFESSIONAL
EXPERIENCE

10/2015–present   **Airbnb**
San Francisco, CA
Research Scientist, AI Lab
Senior tech lead for applied research projects across multiple company initiatives, with a focus on multimodal learning for user-generated content

6/2014–8/2014   **eBay Inc.**
San Jose, CA
Research Intern, Statistical Machine Translation Group
Project: modeling compositional and non-compositional semantics, with applications in machine translation

5/2013–8/2013   **Microsoft Research**
Redmond, WA
Research Intern, Statistical Machine Translation Group
Project: graph-based semi-supervised learning for phrase table expansion

5/2012–8/2012   **IBM Research T.J. Watson Center**
Yorktown Heights, NY
Research Intern, Statistical NLP Group
Project: graph-based unsupervised word similarities from multiple feature types

7/2009–5/2010	**July Systems** Bangalore, India Lead Manager, Product & Product Marketing Product managed won *Best Mobile International* category at 2010 Mobile Excellence Awards
7/2007–3/2009	**Goldman Sachs** New York, NY & Hong Kong Financial Analyst, Structured Equity Solutions Group Series 7, 55, and 63 certified (US NASD), Paper 1 certified (HK SFC)

PUBLICATIONS

Journals

A. Saluja and Y. Zhang; Online Discriminative Learning for Machine Translation with Binary-valued Feedback. *Machine Translation*, Vol. 28 (2) pp. 69-90, 2014.

Conferences

C. Mitcheltree, V. Wharton, and **A. Saluja**; Using Aspect Extraction Approaches to Generate Review Summaries and User Profiles. In *Proceedings of the North American Chapter of the Association for Computational Linguistics (NAACL) - Industry Track*, New Orleans, LA. June 2018.

A. Saluja, C. Dyer, and S. Cohen; Latent Variable Synchronous CFGs for Hierarchical Translation. In *Proceedings of the Conference on Empirical Methods in Natural Language Processing (EMNLP)*, Doha, Qatar. October 2014.

A.P. Parikh, **A. Saluja**, C. Dyer, and E.P. Xing; Language Modeling with Power Low Rank Ensembles. In *Proceedings of the Conference on Empirical Methods in Natural Language Processing (EMNLP)*, Doha, Qatar. October 2014.**(Best Paper Nominee)**

A. Saluja, H. Hassan, K. Toutanova, and C. Quirk; Graph-based Semi-Supervised Learning of Translation Models from Monolingual Data. In *Proceedings of the Association for Computational Linguistics (ACL)*, Baltimore, MD. June 2014.

A. Saluja, I. Lane, and Y. Zhang; Machine Translation with Binary Feedback: a Large-Margin Approach. In *Conference of the Association for Machine Translation in the Americas (AMTA)*, San Diego, CA. October 2012.

A. Saluja, P. Sundararajan, and O.J. Mengshoel; Age-Layered Expectation Maximization for Parameter Learning in Bayesian Networks. In *Artificial Intelligence & Statistics (AIStats)*, La Palma, Spain. April 2012.

A. Saluja, I. Lane, and Y. Zhang; Context-aware Language Modeling for Conversational Speech Translation. In *Machine Translation Summit XIII*, Xiamen, China. September 2011.

Workshops

A. Saluja and J. Navrátil; Graph-based Unsupervised Learning of Word Similarities Using Heterogeneous Feature Types. In *TextGraphs 8: Graph-based Methods for Natural Language Processing*, Seattle, WA. October 2013.

A. Saluja and B. Kveton; Semi-Supervised Learning with Cover Trees. In *Big Learning: 2011 NIPS Workshop on Parallel and Large-Scale Machine Learning*, Granada,

Spain. December 2011.

A. Saluja, F. Mokaya, M. Phielipp, and B. Kveton; Automatic Identity Inference for Smart Televisions. In *AAAI 2011 Workshop on Lifelong Learning*, San Francisco, CA. August 2011.

Preprints & Technical Reports

A. Saluja, C. Dyer, and J.D. Ruvini; Paraphrase-Supervised Models of Compositionality. *arXiv:1801.10293*. February 2018 (originally February 2015).

A. Saluja, M. Pakdaman, D. Piao, and A.P. Parikh; Infinite Mixed Membership Matrix Factorization. *arXiv:1401:3413*. January 2014.

INVITED TALKS	June 2016	OpenAir Conference, San Francisco: *Machine Learning in a Community-driven Marketplace*
	October 2016	Facebook Inc., Menlo Park: *Neural Networks and NLP at Airbnb*
	November 2016	ReWork Machine Intelligence Summit, New York: *Extracting Customer Insights at Airbnb*
	November 2017	Open Data Science Conference, San Francisco: *Deep Learning and Language Processing at Airbnb*
	April 2018	AI NextCon Silicon Valley, Santa Clara: *Deep Learning and Language Processing at Airbnb*
PROFESSIONAL SERVICE	Co-organizer	Modern Machine Learning and Natural Language Processing Workshop held at NIPS 2014
	Program Committee	Multilingual and Crosslingual Methods in Natural Language Processing Workshop held at NAACL 2016
	Reviewer	ACL, NAACL, EACL, EMNLP, JMLR, IWSLT
TEACHING EXPERIENCE	8/2014–12/2014	**18-751** Applied Stochastic Processes Teaching Assistant and Guest Lecturer
	1/2013–5/2013	**18-799M** Advanced Machine Learning Teaching Assistant and Guest Lecturer
LANGUAGES	Programming: Human:	Python, Bash English, Hindi, Urdu, Nepalese, Spanish (fluent); Punjabi (conversational); Bengali, Arabic (basic)
PERSONAL		Lived in 9 countries on 6 continents, with K-12 schooling in international schools MENSA International member Interests: violin, guitar, soccer, cricket, and squash
REFERENCES		Available upon request