Dong Liu

Personal data

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Education

Present	Ph.D.
2016 Dec	*Research in statistical models, Bayesian inference, machine learning*
	Division of Information Science and Engineering
	School of Electrical Engineering and Computer Science
	KTH Royal Institute of Technology, Stockholm, Sweden.
2016 Mar	M.Sc.
2013 Sep	**Top 5%, Excellent Graduate of Shanghai City in 2016.**
	Department of Information and Communication Engineering
	School of Electrical and Information Engineering
	Tongji Univsersity, Shanghai, China.
2013 Jul	B.E.
2009 Sep	**Top 1%, Excellent Graduate of Liaoning Province in 2013**
	Department of Information and Communication Engineering
	Shenyang University of Technology, Shenyang, China

Work Experience

2016 Dec	Engineer, standardization of radio access technology
2016 Apr	Shanghai Research Insittute, Huawei Technologies Co., Ltd

Teaching Experience

Present	Teaching Assistant
2017 Sep	Graduate course EQ2341 Pattern Recognition and Machine Learning
	KTH Royal Institute of Technology, Sweden.

Summer School Experience

2012 Sep	Chinese Academy of Sciences, China.
	Scholarship provided by the Chinese Academy of Sciences.
2012 Aug	Kochi University of Technology, Kochi, Japan.
	Scholarship provided Kochi University of Technology.

Research Interests

Machine learning, Bayesian inference, optimization, signal processing, and their applications. Stochastic models and its application to communications.

Publications

[1] **D. Liu**, R. Thobaben, and L. K. Rasmussen, "Region-based energy neural network for approximate inference," *arXiv preprint arXiv:2006.09927*, 2020.

[2] **D. Liu**, M. T. Vu, Z. Li, and L. K. Rasmussen, "α belief propagation for approximate inference," 2020.

[3] A. Ghosh, A. Honoré, **D. Liu**, G. E. Henter, and S. Chatterjee, "Robust classification using hidden markov models and mixtures of normalizing flows," in *to appeary in IEEE International Workshop on Machine Learning for Signal Processing*, 2020.

[4] A. Scotti, N. N. Moghadam, **D. Liu**, K. Gafvert, and J. Huang, "Graph neural networks for massive mimo detection and higher-order qam," in *to appeary in ICML Workshop on Graph Representation Learning and Beyond*, 2020.

[5] **D. Liu**, A. Honoré, S. Chatterjee, and L. K. Rasmussen, "Powering hidden markov model by neural network based generative models," in *The 24th European Conference on Artificial Intelligence (ECAI)*, 2020.

[6] A. Honoré, **D. Liu**, D. Forsberg, K. Coste, E. Herlenius, S. Chatterjee, and M. Skoglund, "Hidden markov models for sepsis detection in preterm infants," in *ICASSP 2020-2020 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*. IEEE, 2020, pp. 1130–1134.

[7] **D. Liu**, M. T. Vu, S. Chatterjee, and L. K. Rasmussen, "Neural network based explicit mixture models and expectation-maximization based learning," in *International Joint Conference on Neural Networks*, 2020.

[8] **D. Liu**, C. Wang, and L. K. Rasmussen, "Discontinuous reception for multiple-beam communication," *IEEE Access*, vol. 7, pp. 46 931–46 946, 2019.

[9] **D. Liu**, M. T. Vu, S. Chatterjee, and L. K. Rasmussen, "Entropy-regularized optimal transport generative models," in *ICASSP 2019-2019 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*. IEEE, 2019, pp. 3532–3536.

[10] **D. Liu**, N. N. Moghadam, L. K. Rasmussen, J. Huang, and S. Chatterjee, "α belief propagation as fully factorized approximation," 2019.

[11] **D. Liu**, B. Cavarec, L. K. Rasmussen, and J. Yue, "On dominant interference in random networks and communication reliability," in *ICC 2019-2019 IEEE International Conference on Communications (ICC)*. IEEE, 2019, pp. 1–7.

[12] **D. Liu**, V. Fodor, and L. K. Rasmussen, "Will scale-free popularity develop scale-free geo-social networks?" *IEEE Transactions on Network Science and Engineering*, 2018.

[13] **D. Liu**, E. Liu, Y. Ren, Z. Zhang, R. Wang, and F. Liu, "Bounds on secondary user connectivity in cognitive radio networks," *IEEE Communications Letters*, vol. 19, no. 4, pp. 617–620, 2015.

[14] D. Wang, E. Liu, **D. Liu**, X. Qu, R. Ma, P. Wang, and X. Liu, "Rsh: A link-addition strategy for capacity enhancement in scale-free networks," *IEEE Communications Letters*, vol. 19, no. 12, pp. 2110–2113, 2015.

[15] Z. Zhang, E. Liu, X. Qu, **D. Liu**, R. Wang, and F. Liu, "Effective coverage for the connectivity of magnetic induction-based ad hoc networks," in *2015 IEEE Global Communications Conference (GLOBECOM)*. IEEE, 2015, pp. 1–6.

[16] **D. Liu**, E. Liu, Y. Ren, Z. Zhang, D. Wang, R. Wang, P. Wang, F. Liu, and C. H. Liu, "Node density and connectivity of multi-channel ad hoc cognitive radio networks," in *2015 IEEE/CIC International Conference on Communications in China (ICCC)*. IEEE, 2015, pp. 1–6.

[17] D. Wang, E. Liu, **D. Liu**, X. Qu, R. Ma, R. Wang, P. Wang, F. Liu, and C. H. Liu, "Structural hole based link addition for capacity enhancement in scale-free networks," in *2015 IEEE/CIC International Conference on Communications in China (ICCC)*. IEEE, 2015, pp. 1–6.

[18] **D. Liu**, E. Liu, Z. Zhang, R. Wang, Y. Ren, Y. Liu, I. W.-H. Ho, X. Yin, and F. Liu, "Secondary network connectivity of ad hoc cognitive radio networks," *IEEE Communications Letters*, vol. 18, no. 12, pp. 2177–2180, 2014.

[19] **D. Liu**, E. Liu, Y. R. IET, R. W. Zhengqing, X. Yin, and F. Liu, "Energy based sequence detection algorithm with multi-slot for cognitive radio networks."

[20] Y. Ren, C. Wang, **D. Liu**, F. Liu, and E. Liu, "Applying lte-d2d to support v2v communication using local geographic knowledge," in *2015 IEEE 82nd Vehicular Technology Conference (VTC2015-Fall)*. IEEE, 2015, pp. 1–5.

[21] Y. Ren, **D. Liu**, C. Wang, F. Liu, and E. Liu, "Spectram-sculpting-aided interference avoidance for ofdm-based cognitive networks," in *2015 IEEE 26th Annual International Symposium on Personal, Indoor, and Mobile Radio Communications (PIMRC)*. IEEE, 2015, pp. 1012–1017.

[22] Y. Ren, C. Wang, **D. Liu**, F. Liu, and E. Liu, "Spectrum-sculpting-aided pu-claiming in ofdma cognitive radio networks," in *International Conference on Cognitive Radio Oriented Wireless Networks*. Springer, 2015, pp. 295–307.

Grants & Scholarships

2019 Nov 2017 Jan	Grants, amount $\approx 83k$ SEK. Grant from Karl Engvers Foundation, Sweden, 2020. Grant from Knut and Alice Wallenberg Foundation "Jubilee appropriation", Sweden, 2019. Grant from Ericsson Research Foundation, Sweden, 2019. Grant from General Travel Foundation, KTH, Sweden, 2019. Gran from IEEE Signal Processing Society Travel Grant, 2019.
2016 Dec 2013 Aug	Postgraduate studies scholarships, amount $\approx 55k$ SEK. National Scholarship for Postgraduate Studies, China, 2013-2016.

	National Scholarship for Postgraduate, China, 2015.
2013 Jun 2009 Sep	Undergraduate studies scholarships, amount $\approx 49k$ SEK. National Scholarship for Undergraduates in 2012 and 2011, respectively. The First Class Scholarship of Chinese Instrument and Control Society in 2012. The Mayor Scholarship of Shenyang City in 2011. The Scholarship of Liaoning Provincial Government in 2010. The Special Scholarship in 2012, 2011 and the First-class scholarship in 2010, from Shenyang University of Technology.

Contest Awards

2019	The Bronze Award in the 5th China Internet+ University Graduates Innovation & Entrepreneurship Awards.
2014	The First Prize in the National Postgraduate Mathematic Contest in Modeling in China. Top **2.45% in 4900** teams in China, fast fading channel modeling and optimization. Algorithm optimization and programming for channel modeling simulation.
2012	The President Award in Fukuda Gold Robot Cup Contest of Shenyang City. My team spent 2 months designing a searching robot capable of seeking and picking metal disks in a given area. My work: circuit welding and a part of programming for the main micro-chip.
2011	The Grand Prize in Liaoning Contest District of National Undergraduate Electronic Design Contest. A digital signal transmission analyzer was designed by my team. I programmed the FPGA chips in this contest.
2011	The First Prize in Liaoning Contest District of Chinese Undergraduate Mathematical Contest in 2011 and 2010 respectively.

Honors

2016 Jun to 2011 Sep	The Excellent Graduate of Shanghai City in 2016. The Excellent Graduate of Liaoning Province in 2013. The Excellent Graduate of Shenyang University of Technology in 2013. The Award Nomination in People of Year 2012 of Liaoning Provincial Undergraduates. The Pivot of Merit Students of Liaoning Province in 2012. The Outstanding Inspirational Talent of College Students of Liaoning Province in 2011. The Youth Medal of Shenyang University of Technology in 2012. 4 award winners are selected among over 16,000 undergraduates every two years. The Second Prize for Outstanding Contribution to the university in 2011, the Excellent Student Leader in 2011, the Pivot of Merit Students in 2010, the Top Ten Students of school in 2012, 2011 and 2010, respectively, Shenyang University of Technology.

Languages

Mother tongue :	Chinese
Professional :	English

Other skills

Technical skills:	Experienced in the administration of Linux computational servers.
Programming:	Python, Pytorch, Bash, Matlab, LaTeX