Ni Lao

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EDUCATION

Carnegie Mellon University

- PhD in Computer Science (2012)
    - Thesis: Efficient Random Walk Inference with Knowledge Bases.

Tsinghua University

- Master's degree in Computer Science (2006)
    - Thesis: Data Mining Problems in Automatic Computer Diagnosis
- Bachelor's degree in Electronic Engineering (2003)
    - Thesis: Mining Spatial-Temporal Data Using Constructive Induction

PROFESSIONAL/RESEARCH EXPERIENCE

Chief Scientist@SayMosaic:(2/2018~)

- Voice Search

Research Scientist@Google:(8/2012~1/2018)

- Question answering based on knowledge graph and the Web

Research Assistant @CMU (7/2006~6/2012)

- Intern@Google Research:(2011)
    - Combine KG and dependency parses to extract information from text.
- Intern@Microsoft Research:(2010)
    - Learning from search log to automatically modify users' search queries.
- With William Cohen
    - Random walk inference on graphs (thesis)
    - Relational CRFs structure learning, and hidden variable induction
- With Teruko Mitamura
    - Main developer for a cross-lingual question answering system (JAVELIN)
    - Chinese Semantic Role Labeling
    - Recurrent NN for constituency parsing
- With Yiming Yang
    - Automated evaluation for utility-based information distillation

Intern@Microsoft Research Asia: (7/2003~6/2006)

- Large scale clustering and classification of online products by visual and textual clues.
- Compare personalized search strategies by simulating user experience from search log.
- Compare learning methods to improve search engine relevance performance.

- Automatic OS system troubleshooting based on data mining and machine learning.

Intern@State Key Lab of Intelligent Technology and Systems (2/2001~6/2003)

- Main developer of the Tsinghua Aeolus system, which placed first in RoboCup Simulation League in 2001 and 2002

PATENTS/PUBLICATIONS

- Juanzi Li, Ming Zhou, Guilin Qi, Ni Lao, Tong Ruan, Jianfeng Du, Knowledge Graph and Semantic Computing. Language, Knowledge, and Intelligence, Communications in Computer and Information Science, Springer, 2017
- Fan Yang, Jiazhong Nie, William W. Cohen, Ni Lao, Learning to Organize Knowledge with N-Gram Machines, ICLR 2018 Workshop
- Chen Liang, Jonathan Berant, Quoc Le, Kenneth D. Forbus, Ni Lao, Neural Symbolic Machines: Learning Semantic Parsers on Freebase with Weak Supervision, ACL 2017.
- GP-201712-00-US: Neural Symbolic Machines: Learning Semantic Parsers on Freebase with Weak Supervision
- GP-201441-00-US: Answer to Question (A2Q) - Technique of generating questions that are answered by a given piece of text to improve Question Answering
- Ni Lao, Einat Minkov and William Cohen, Learning relational features with backward random walks , ACL 2015.
- William Yang Wang, Kathryn Mazaitis, Ni Lao, Tom Mitchell, and William W. Cohen, "Efficient Inference and Learning in a Large Knowledge Base: Reasoning with Extracted Information using a Locally Groundable First-Order Probabilistic Logic", Machine Learning Journal, 2015, Springer
- T. Mitchell, B. Kisiel, A. Ritterk, M. Samadi, W. Cohen, J. Krishnamurthy, E. Hruschka, P. Talukdar, J. Betteridge, N. Lao, K. Mazaitis, B. Settles, R. Wang, T. Mohammad, D. Wijaya, A. Gupta M. Greaves, J. Welling, Never-Ending Learning, AAAI 2015
- Xin Luna Dong, Evgeniy Gabrilovich, Geremy Heitz, Wilko Horn, Ni Lao, Kevin Murphyy, Thomas Strohmann, Shaohua Sun, Wei Zhang Knowledge Vault: A Web-Scale Approach to Probabilistic Knowledge Fusion. KDD, 2014
- GP-17360-00-US, Using Syntactic-semantic Inference Rules To Expand A Data Graph
- GP-17360-01-US, Querying A Data Graph Using Natural Language Queries
- US Patent 20120233140, Context-Aware Query Alteration, 2012
- Ni Lao, Amarnag Subramanya, Fernando Pereira, William W. Cohen Reading The Web with Learned Syntactic-Semantic Inference Rules. EMNLP, 2012
- Ni Lao, William W. Cohen, Personalized Reading Recommendations for Saccharomyces Genome Database. DILS, 2012
- Ni Lao, Tom Mitchell, William W. Cohen, Random Walk Inference and Learning in A Large Scale Knowledge Base. EMNLP, 2011
- Jun Zhu, Ni Lao, Ning Chen, Eric P. Xing Conditional Topical Coding: an Efficient Topic Model Conditioned on Rich Features. KDD, 2011
- Ni Lao, William W. Cohen, Relational retrieval using a combination of path-constrained

random walks Machine Learning, 2010, Volume 81, Number 1, Pages 53-67. ECML, 2010.

- Ni Lao, Jun Zhu, Liu Liu, Yandong Liu, William W. Cohen, Efficient Relational Learning with Hidden Variable Detection. NIPS, 2010
- Ni Lao, William W. Cohen, Fast Query Execution for Retrieval Models based on Path Constrained Random Walks. KDD, 2010
- Jun Zhu, Ni Lao, E. P. Xing, Grafting-Light: Fast, Incremental Feature Selection and Structure Learning of Markov Random Fields. KDD, 2010
- Lao, Ni, Hideki Shima, Teruko Mitamura and Eric Nyberg. 2008. Query Expansion and Machine Translation for Robust Cross-Lingual Information Retrieval , in Proceedings of NTCIR-7 Workshop, Japan.
- Shima, Hideki, Ni Lao, Eric Nyberg and Teruko Mitamura. 2008. Complex Cross-lingual Question Answering as Sequential Classification and Multi-Document Summarization Task , in Proceedings of NTCIR-7 Workshop, Japan.
- W. Zuo, N. Lao, Y. Geng, and K. Ma. 2008. GeoSVM: an efficient and effective tool to predict species' potential distributions. Journal of Plant Ecology, 1(2): 143-145.
- Yiming Yang,Abhimanyu Lad, Ni Lao, Abhay Harpale, Bryan Kisiel, Monica Rogati, Utility-based information distillation over temporally sequenced documents, SIGIR, pp. 31-38, 2007.
- Chun Yuan; Ni Lao; Ji-Rong Wen; Jiwei Li; Zheng Zhang; Yi-Min Wang; Wei-Ying Ma, Automated Known Problem Diagnosis with Event Traces, EuroSys, 2006.
- Ni Lao, Ji-Rong Wen, Wei-Ying Ma, Yi-Min Wang, Combine High Level Symptom and Low Level State Information for Configuration Fault Diagnosis, LISA, 2004.
- Ji-Rong Wen, Ni Lao, Wei-Ying Ma, Probabilistic Model for Contextual Retrieval, SIGIR, 2004.
- Archana Ganapathi, Yi-Min Wang, Ni Lao, Ji-Ron g Wen, Why PCs Are Fragile and What We Can Do About It: A Study of Windows Registry Problems, Dependable System and Network (DSN), 2004.
- Jinyi Yao, Lao Ni, Fan Yang, Yunpeng Cai, Zengqi Sun, Technical Solutions of TsinghuAeolus for Robotic Soccer. Robocup 2003: 205-213,RoboCup, pp. 205-213, 2003.

TALKS/PRESENTATIONS

- 2004, Atlanta, USA, USENIX Large Installation System Administration (LISA) Conference
- 2008, Tokyo, Japan, NTCIR-7 Workshop
- 2010, Barcelona, Catalonia, Spain, European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML PKDD)
- 2010, Baltimore, USA, Conference on Knowledge Discovery and Data Mining (KDD)
- 2010, Vancouver, Canada, Neural Information Processing Systems,
- 2011, Barcelona, Spain, Conference on Empirical Methods in Natural Language Processing (EMNLP)
- 2012, College Park, MD, USA, Data Integration in the Life Sciences (DILS)
- 2015, Lecture at CCF ADL65. New Development in Knowledge Acquisition, Inference, and Applications

- 2016, NIPS RNN symposium, Neural Symbolic Machines
- 2016, NIPS NAMPI workshop, Neural Symbolic Machines

PROGRAM CHAIR/REVIEWS

- 2010: CIKM
- 2011: NIPS, Transactions on Fuzzy Systems,
- 2012: SIGKDD, Neurocomputing, SIGIR, JCST, TKDD
- 2013: CIKM
- 2014: SIGKDD, ICML
- 2015: IJCAI, CIKM, NIPS, MLJ, ICML, TKDE
- 2016: IJCAI, NAACL, ECML, CIKM, WWW, COLING
- 2017: ACL, SIGIR, IJCAI, EMNLP, CCKS, IJCNLP, WSDM, TKDE, GRA
- 2018: NAACL, COLING, SIGIR, ACL, CCKS, NLPCC, NIPS, EMNLP