Mingbo Ma

CONTACT INFORMATION

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RESEARCH INTERESTS

Machine Learning based Natural Language Processing Algorithms, especially Neural Networks based models for the applications in Sentimental Analysis, Sentence Classification and Question Answering. Also interested in Sparse Coding, Low-rank Analysis, Manifold Learning based face recognition and image classification models.

EDUCATION

Oregon State University, Corvallis, OR, USA **Sep. 2015 – present**
Ph.D student in Computer Science

The Graduate Center at CUNY, New York, NY, USA **June. 2013 – Aug. 2015**
Ph.D student in Computer Science
Advisor: Liang Huang

Northeastern University, Boston, MA, USA **Sep. 2012 – May 2013**
Ph.D student in Electrical Engineering

State University of New York at Buffalo, Buffalo, NY, USA **Jan. 2012 – Aug. 2012**
Ph.D student in Computer Science
Advisor: Yun (Raymond) Fu

Florida Institute of Technology, Melbourne, FL, USA **Aug. 2008 – May 2010**
Master of Science in Electrical Engineering
Advisor: Georgios C. Anagnostopoulos
Thesis: " Kernel-based Sammon Mapping for Dimensionality Reduction & Data Visualization"

Jilin University, Changchun, Jilin, China **Aug. 2004 – July 2008**
Bachelor of Science in Telecommunication Engineering

RESEARCH EXPERIENCE

Oregon State University / The Graduate Center at CUNY **June. 2013 – present**
Research Assistant **Supervisor:** Liang Huang
Topic: *Deep Learning algorithm for Sentiment Analysis and Question Answering*

- Dependency tree-based Convolutional Neural Networks for sentiment and sentence classification.
- Proposed Convolution based model for Question Answering.
- Models used for NLP analysis includes Recursive, Recurrent, Convolutional Neural Networks and Long Short Term Memory.

SUNY Buffalo / Northeastern University **Jan. 2012 – June 2013**
Research Assistant **Supervisor:** Yun (Raymond) Fu
Topic: *Locality Constraint Subspace Learning*

- Proposed a model for sparse graph embedding with locality sparse coding constraint.
- Formulate a model to choose the neighborhood for each locality automatically.
- Build the sparse graph embedding for face within each locality.

Topic: *Low-Rank Outlier Detection for Manifold Learning*

- Proposed a low-rank description for manifold learning.
- Proved each locally area of manifold can be approximated by a low-rank matrix in theory.

Topic: *Prototype Based Feature Learning*

- Proposed a prototype formation on image set for discriminative feature representation.
- Use prototype image sets as common reference to represent any image set.
- Proposed to use normal face to capture the discriminative information.

Topic: *Relative Max-Margin Feature Learning*

- Proposed a model to learning the max-margin feature relatively through reference basis.
- Adopted the traditional image classification pipeline to our model.

Florida Institute of Technology **Aug. 2008 – May 2010**

Research Assistant **Supervisor:** Georgios C. Anagnostopoulos

Topic: *Kernel-based Sammon Mapping for Metric Representations*

- Proposed a generalization of Sammon's mapping.
- Formulate projections as linear combinations of appropriate kernel functions.
- This approach subsumes the classical Sammon mapping, Radial Basis Function, Multi-layer Perceptron based approach as special cases.

Research Experiences for Undergraduates (REU) Program **May 2009 – Aug. 2009**

Graduate Mentor and Team Lead **Supervisor:** Georgios C. Anagnostopoulos

- Team lead, give a guidance of research and offer a theorem support.
- Finished a technique report.
- A demo relates to Multidimensional Scaling technique was created by GUI in matlab.

Industrial Experience

IBM T.J. Watson Research Center, Yorktown Heights, NY, USA **June 2016 – Sep 2016**

Watson Research Intern in Cognitive Analytics and Deep Learning Group

Proposed a set of attention regularizations to make the attention between source and target sides more accurate for summarization. (undergoing project)

Proposed a new neural-based summarization model. (undergoing project)

Mentor: Ramesh M. Nallapati **Manegers:** Bing Xiang & Bowen Zhou

Authentec Inc.(acquired by Apple Inc. in 2012), Melbourne, FL, USA **May 2010 – Jun 2011**

Algorithm Engineer

Developed imaging algorithms to enhancement for finger detection, fingerprint image and reconstruction performance, The techniques relate to image processing, metric analysis, real time signal processing and filter design.

Mentors: Michael Boshra & Qiang Liu

Publications

Mingbo Ma, Liang Huang, Bing Xiang and Bowen Zhou, "Dependency-based Convolutional Neural Networks for Sentence Embedding", ACL, 2015.

Ming Shao, **Mingbo Ma**, and Yun Fu, "Low-Rank and Sparse Modeling for Visual Analysis", *Sparse Manifold Subspace Learning*, Springer, 2014.

Mingbo Ma, Ming Shao, Xu Zhao and Yun Fu, "Prototype Based Feature Learning for Face Image Set Classification", *International Conference on Automatic Face and Gesture Recognition*, 2013.

Mingbo Ma, Ryan Gonet, RuiZhi Yu and Georgios C. Anagnostopoulos, "Metric Representations of Data via the Kernel-based Sammon Mapping", *IEEE International Joint Conference on Neural Networks (IJCNN)*, 2010.

Qian Ma and **Mingbo Ma**, "Broadband Amplifier Gain Slope Equalization Filter", In *Proceedings of the 2008 Progress In Electromagnetics Research Symposium (PIERS)*, 2008.

Teaching Experience

Algorithms, Oregon State University, Fall 2016
Deep Learning, Oregon State University, Winter 2016
Theory of Computation, Oregon State University, Fall 2015
Software Engineering, Queens College, CUNY, Spring 2015
Introduction to Computers and Computation, Queens College, CUNY, Fall 2014