ZHEYUN FENG

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SUMMARY

With 7 years of research experience in **Machine Learning**, **Data Mining/Analysis**, **Statistical Modeling** and **Information Retrieval**. With publications on top conferences (ICCV and ECCV).

EDUCATION

Ph.D. Computer Science   *Aug.2011-Dec.2015*
Michigan State University, East Lansing, MI, USA.
Thesis: *Large Scale Image Annotation and Noisy Tag Recovery.*
Advisor: Prof. Rong Jin. GPA: 3.875

M.E. (Ingénieur) Signal and Image Processing   *Sep.2009-Jul.2011*
Telecom ParisTech (École Nationale Supérieure des Télécommunications), Paris, France.
Awarded with Eiffel Excellence Scholarship, the highest honor for international students.

B.S. Electrical Science and Engineering   *Sep.2005-Jun.2009*
Nanjing University, Nanjing, China.
Graduated with Honors. *Major GPA: 91/100, ranked 3 out of 89.*

EMPLOYMENT EXPERIENCES

Software Engineer   *Jan. 2016 - present*
Research at Google, Machine Perception Team   Mountain View, CA

Research Assistant   *Aug. 2011 - Dec. 2015*
LINKS Lab, Dept. of CSE, Michigan State University   East Lansing, MI

Researcher- Machine Learning Intern   *May 2013 - Aug. 2013, May 2014 - Aug. 2014*
Video Content Analysis Group, Comcast Labs DC   Washington, DC

Research Internship   *Jul. 2010 - Jan. 2011*
New Initiatives Lab, Cisco (NDS) FRANCE. Awarded with the first degree premium.   Paris, France.

SELECTED RESEARCH PROJECTS

Multi-label Classification and Noisy Tag/Label Recovery   2012 - 2015

- Developed an *efficient kernel metric learning* algorithm to capture feature similarity.
- Developed an *efficient robust matrix completion* algorithm to recover missing and remove noisy tags(labels).
- Improved efficiency by approximating kernels and solving convex optimization problem.
- Provided theoretical guarantees with statistical error bounds.
- Accuracy improved 5% by comparing with state-of-the-art image tagging algorithms.
- Algorithms were applicable to document/image/audio/video tagging and multi-label classification.

Multimedia Data Processing and Content Analysis   2010, 2013, 2014
Industrial intern projects in Comcast Labs DC and Cisco (NDS) France

- Developed an online application to detect and recognize commercials (advertisements) in TV Programs.
- Video(image, audio and subtitle) decoding/processing, feature extraction and synchronization.
- Accomplished text, logo, time/score ticker, face detection and recognition.
- Applied semi-supervised ensemble classification to identify the commercials.

- Achieved precision 98.6%, recall 98.4% on 102 videos, 20% higher than commercial tool Comskip.

Large-scale Document Retrieval and Query Expansion 05/2012 - 09/2012
- Improved retrieval performance by improving similarity scoring and applying query expansion.

Data classification and clustering 10/2012 - 04/2015
- Developed an effective algorithm to analyze the customer data and predict the business risk.
- Proposed a fast stochastic gradient descent method to solve high dimensional classification problem.
- Developed an ensemble classifier to classify 1K Synsets of ImageNet images, with accuracy of 91%.
- Developed a genetic algorithm to cluster large-scale high dimensional data from UCI datasets.

Large-scale Information Search in High Dimensional Space 10/2011 - 05/2012
- Converted a high dimensional search to a sequence of one dimensional search with random projection.
- Derived an efficient kernel based vector representation for images to promote the computation.

Image Processing and Analysis 2008, 2009 - 2011
- Performed cardiac MRI alignment with tagging lines, and reconstructed 3D cardiac deformation model.
- Segmented cytological/histological images, clustered and detected cancer cellular or abnormal tissue.
- Transferred color between photos, and corrected rendering color in certain clusters.
- Developed a fingerprint recognition system, with image processing, enhancement and matching skills.

SELECTED PUBLICATIONS

- **Zheyun Feng**, Rong Jin and Anil K. Jain. *Large-scale Image Annotation by Efficient and Robust Kernel Metric Learning.* In International Conference of Computer Vision (ICCV),pp. 1609-1616, 2013.
- **Zheyun Feng**, Songhe Feng, Rong Jin and Anil K. Jain. *Image Tag Completion by Noisy Matrix Recovery* In European Conference of Computer Vision (ECCV), pp. 424-438, 2014.
- Songhe Feng, **Zheyun Feng**, and Rong Jin. *Learning to Rank Image Tags with Limited Training Examples* In IEEE Transactions on Image Processing, Vol. 24, NO. 4, April 2015.

ACTIVITIES

Paper Reviewer	AAAI 2015, TIP 2015
Teaching Assistant	CSE484 Information Retrieval, Fall 2013, MSU
Google Code Jam 2014	Full score 90/90 in Qualification round, ranked $1,613$ out of $30K$

TECHNICAL STRENGTHS

Programming Languages	Java (5 years), C/C++ (10 years), Matlab (8 years), Python (2 years), Scala, Perl, R, MySQL
Tools & Protocols	scikit-learn, OpenCV, Lucene, XML, JSON, Weka, Hadoop, MapReduce, Spark, HPCC, GitHub, SVN
Languages	English, Chinese, French

SELECTED GRADUATE COURSES

- ▷ Machine Learning
- ▷ Pattern Recognition & Analysis
- ▷ Computer Vision
- ▷ Data Mining
- ▷ Natural Language Processing and Interaction
- ▷ Multimedia Indexing and Retrieval
- ▷ Design & Theory of Algorithms
- ▷ Signal and Audio Processing
- ▷ Image Analysis and Reasoning
- ▷ Probability
- ▷ Evolutionary Computation
- ▷ Advanced Computer Graphics