

# CV for Data Scientist

**HE ZHANG** 张鹤

Data Scientist, PhD in Machine Learning

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Born: 19.08.1981, Changchun, P. R. China



## KEY COMPETENCIES AND STRENGTHS

- Over 7 years research and working experience in Machine Learning and Data Mining field.
- Strong data analytical and programming skills especially with Matlab and Python.
- Excellent English writing and oral presentation skills.
- Strong team-work spirit with experience of working in highly international environments for years.
- Native Mandarin speaker with Permanent Finnish Resident and Working Permit.

## WORKING & RESEARCH EXPERIENCE

### 2014 - Now **Data Analyst at Verto Analytics Inc. (Area: data analytics and image recognition)**

I am working on versatile projects at Verto Analytics Inc. - a Finnish Pioneer in Digital Media Research and Measurement Industry.

My responsibilities include: **1)** developing and implementing machine learning algorithms for mobile-end App image recognition; **2)** collaborating with marketing professionals for writing market insights reports; **3)** data quality assurance, data cleaning and curation, data visualisation, and data production.

### 2011 - 2014 **Nonnegative Learning for Data Clustering (Area: algorithms and optimisations)**

I designed several Machine learning algorithms using matrix factorisation models to better detect groups or clusters in various data sets. The algorithms can be directly applied for, e.g., Recommendation Systems and Market Segmentation. I published the results in 6 scientific journals and papers.

### 2011 - 2014 **Understanding the Emotional Impacts of Images (Area: image processing)**

I developed several image processing methods to predict emotional impacts of artistic images. The methods can improve the performance of Affective Image Classification and Retrieval systems. I published the results in 4 scientific journals and papers.

### 2008 - 2010 **PinView - A Proactive Personal Information Navigator (Area: multimedia retrieval)**

I developed a Gaze-and-Speech-enhanced Content-Based Image Retrieval system that can infer the user's search interests based on his or her feedbacks such as eye tracking data. I also implemented a client-side browser extension using JavaScript and managed to publish the results in 2 scientific conferences.

### 2005 - 2007 **Research Assistant in the Multimedia Laboratory, Jilin University, China**

I developed matrix transformation techniques for colour image and video compression.



## PUBLICATION LIST

### Journal Articles

1. **He Zhang**, Zhirong Yang, and Erkki Oja. *Improving Cluster Analysis By Co-initialisations*. Pattern Recognition Letters, 45: 71-77, 2014.
2. **He Zhang**, Zhirong Yang, and Erkki Oja. *Adaptive Multiplicative Updates for Quadratic Nonnegative Matrix Factorisation*. Neurocomputing, 134: 206-213, 2014.
3. **He Zhang**, Mehmet Gönen, Zhirong Yang, and Erkki Oja. *Understanding Emotional Impact of Images Using Bayesian Multiple Kernel Learning*. Neurocomputing, 165: 3-13, 2015.

### Conference Papers

4. **He Zhang**, Mehmet Gönen, Zhirong Yang, and Erkki Oja. *Predicting Emotional States of Images Using Bayesian Multiple Kernel Learning*. In Proceedings of the 20th International Conference on Neural Information Processing (ICONIP), Daegu, South Korea, 2013. **Oral presentation**.
5. **He Zhang**, Zhirong Yang, Mehmet Gönen, Markus Koskela, Jorma Laaksonen, Timo Honkela, and Erkki Oja. *Affective Abstract Image Classification and Retrieval Using Multiple Kernel Learning*. ICONIP 2013, Daegu, South Korea, 2013. **Oral presentation**.
6. **He Zhang**, Zhirong Yang, and Erkki Oja. *Adaptive Multiplicative Updates for Projective Nonnegative Matrix Factorisation*. ICONIP 2012, Doha, Qatar, 2012. **Oral presentation**.
7. Zhirong Yang, **He Zhang**, and Erkki Oja. *Online Projective Nonnegative Matrix Factorisation for Large Datasets*. ICONIP 2012, Doha, Qatar, 2012. Oral presentation.
8. **He Zhang**, Tele Hao, Zhirong Yang, and Erkki Oja. *Pairwise Clustering with t-PLSI*. In Proceedings of the 22nd International Conference on Artificial Neural Networks (ICANN), Lausanne, Switzerland, 2012. **Travel Grant Award**.
9. **He Zhang**, Mats Sjöberg, Jorma Laaksonen, and Erkki Oja. *A Multimodal Information Collector for Content-Based Image Retrieval System*. ICONIP 2011, Shanghai, China, 2011. **Oral presentation**.
10. **He Zhang**, Eimontas Augilius, Timo Honkela, Jorma Laaksonen et al. *Analysing Emotional Semantics of Abstract Art Using Low-Level Image Features*. In Proceedings of the 10th International Conference on Advances in Intelligent Data Analysis (IDA), Porto, Portugal, 2011. **Oral presentation**.
11. **He Zhang**, Teemu Ruokolainen, Jorma Laaksonen, Christina Hochleitner, and Rudolf Traunmüller. *Gaze and Speech-Enhanced Content-Based Image Retrieval in Image Tagging*. ICANN 2011, Espoo, Finland, 2011. **Poster presentation**.
12. Zhirong Yang, **He Zhang**, Zhijian Yuan, and Erkki Oja. *Kullback-Leibler Divergence for Nonnegative Matrix Factorisation*. ICANN 2011, Espoo, Finland, 2011. **Oral presentation**.

### Technical Reports

13. **He Zhang**, Markus Koskela, and Jorma Laaksonen. *Report on Forms of Enriched Relevance Feedback*. Technical Report TTK-ICS-R10, Helsinki University of Technology, Department of Information and Computer Science. Presented at PinView meeting, University College London, 2008.
14. **He Zhang**, Mats Sjöberg, and Jorma Laaksonen. *Browser Extension for Pointer Track Feedback*. PinView Deliverables. Presented at PinView meeting, Leoben University, Austria, 2008.
15. Christina Hochleitner, Rudolf Traunmüller, Teemu Ruokolainen, and **He Zhang**. *Archiving with Supported Tagging*. PinView Deliverables. Presented in Celum Company, Austria, 2011.