Junhao **Hua**

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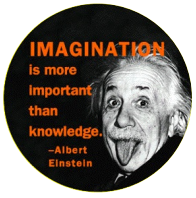

Machine Learning Engineer

Bio. I am currently a PhD Student at College of ISEE, Zhejiang University, China, working with Chunguang Li on Variational Bayesian Algorithms and their applications in Distributed Systems.

Research interests. My Ph.D research work covers a range of issues : **variational Bayesian inference, stochastic/distributed optimization, probabilistic graphical models, transfer learning, multitask learning and sensor networks**. Currently, I am interesting in varies approaches to deep learning (CNN, GAN, Deep Bayesian Learning, etc.) and their applications to computer vision (image processing, video analysis, etc.).

Education

Sep 2013 – Jun 2018 (expected)	**PhD Candidate** in Circuits and Systems, *Zhejiang University* (ZJU), Hangzhou Center for Statistical Information and Image Processing (SI^{2}P) *Advisor : Prof. Chunguang Li* **GPA** : 4.1/5.0
Sep 2009 –Jun 2013	**Bachelor of Engineering**, *Zhejiang University of Technology* (ZJUT), Hangzhou Double Majors in Computer Science & Automation *Advisor :Prof. Shenyong Chen* **GPA** : 3.78/5.0 | **Rank** : 2/58

Publications

- **Junhao Hua**, Chunguang Li, "Distributed Robust Kalman Filtering By Variational Bayesian Approximations," in preparation.
- **Junhao Hua**, Chunguang Li, "Distributed Jointly Sparse Bayesian Learning with Quantized Communication," submitted to *IEEE Transactions on Cybernetics*.
- **Junhao Hua**, Chunguang Li, and Hui-Liang Shen, "Distributed learning of predictive structures from multiple tasks over networks," *IEEE Transactions on Industrial Electronics* (**ZJU-TOP100, SCI**), to be published, doi : 10.1109/TIE.2016.2588463.
- **Junhao Hua**, Chunguang Li, "Distributed variational Bayesian algorithms over sensor networks," *IEEE Transactions on Signal Processing* (**TOP SCI**), vol.64, no.3, pp.783–798, Feb 2016.

Skills

Programming Skills :	**C/C++**, Matlab, LaTeX, Python, Java, Git.
Machine Learning :	*master in* **Variational Bayes, Distributed Algorithms, Probablistic graphical models**. *familiar with* most statistical machine learning/signal processing algorithms/techqiues. *familiar with* (convex) optimization theory, matrix theory.
Computer Vision :	*have a certain understanding of* image processing (segmentation, classification, etc.), video analysis (object recogintion, tracking, etc.).
Qualification Certificates :	Database technology (3-level), Network engineer (mid-class), Software engineer (mid-class).

Projects & Experiences

May 2015 – Oct 2013 | Computer vision and image processing, ZJU , C/Matlab/Python

- *Object Recognition* based on SIFT feature implemented by Matlab mixed with C.
- *Recommender Systems* based on latent factor models and matrix factorization.
- Implementation of *Image Seamless Editing* by solving Poisson equations.
- *Image Denoising* based on non-linear anistropic diffusion techniques.
- : sift, MFResys, PoissonImageEditing, ImageDenoising.

Object Recognition | Image Processing | Recommender Systems | Python

Apr 2014 – Feb 2014 | **Action/Behavior Recognition in Videos, ZJU, Matlab**

- Extract the spatio-temporal features and obtain "Bag of words" represetation by clustering (k-means) the extracted features ;
- Infer the posterior by pLSA/LDA (unsupervised Learning) or by simple classfications (KNN, SVM) ;
- Propose a simple method called 'voting' to achieve multiple actions recogintion task.
- : github.com/huajh/action_recognition

Action Recoginition | Machine Learning | Clustering | LDA | "Bag of Words" Representation

May 2013 – Dec 2012 | **Brain MR image segmentation, ZJUT, Bachelor Thesis**

- Apply the GMM, student-t mixture model, and Dirichlet process based infinite mixture modelto the brain MR image clustering problem ;
- Derive the detail variational Bayesian inference process.
- Improve these three algorithms by using laplacian graph (manifold learning) ;
- : github.com/huajh/variational_bayesian_clusterings

Mixture Model | Clustering | Dirichlet Process | Variational Bayes | Manifold Learnig

Nov 2012 – Jul 2012 | **C/C++ Engineer Internship, R&D, State Street (Hangzhou), China**

- Responsible for the maintenance and development of Princeton Financial Systems.
- As well as in charge of improving the performance of the system by integrating new technologies.

C/C++ programming | C performance optimization | portfolio

Jul 2012 – May 2011 | **Member of project team, Institute of intelligent systems, ZJUT**

- Oct 2011-May 2012, write a paper *Traffic routing algorithm based on the spatial complex networks* ;
- May-Sep 2011, work on the project : *Motion Sensing PPT based on Kinect* | *Programmer*.

complex networks | kinect | C#

Dec 2011 – Oct 2011 | **Tiny Software development, ZJUT, C/C++/JAVA**

- Oct-Dec 2011, *Online Works Show Platform* | *Leader*. I designed and implemented a lightweight relational object JDBC package, which is used for the programming of the server. Got the 2nd place of the contest judged by the TaoBao UED. : github.com/huajh/showplatform
- Nov 2011, *Unix File System* | *Independent developer*. The system is implemented by the C/C++. It has basic shell commands, well performed memory management, as well as the users management, and it supports parallel operation. : github.com/huajh/unix_file_sys

JAVA | Unix | software development | Database | Sql Server

Languages

English : Reading ●●●●● CET-4 :502
Listening ●●●●○ CET-6 : 478
Speaking ●●●○○

Honors & Awards

Fall 2016 National Scholarship for Graduate Students of Zhejiang University (¥30,000).
Fall 2016 Outstanding graduate student of Zhejiang University.
Spring 2013 Outstanding undergraduate student of Zhejiang University of Technology (ZJUT).
2010 - 2012 Scholarship and Merit Student of ZJUT(1st-class (<5%), 1 time ; 2nd-class (<10%), 2 times).
2011 & 2012 First-class Mathematical modeling Contest of ZJUT. (<5%, 2 times)
Fall 2011 Second prize of National Mathematical Contest in Modeling (<6.5%).
Fall 2010 First prize of National college students Mathematical Contest (non-math) in Zhejiang (<3%).

Interests

Sports : Basketball, Football, Climbing, Extreme sports, Wilderness survival.
Arts : Photography, Painting, Movies.
Misc : Traveling, Quantitative investment.

(last update : 13 Apr. 2017)