

How Did I Get Here?



Who am I?



Jun Zhu

2011 ~ present **Associate Professor**, State Key Lab of Intelligent Technology and Systems, Department of Computer Science and Technology, Tsinghua University



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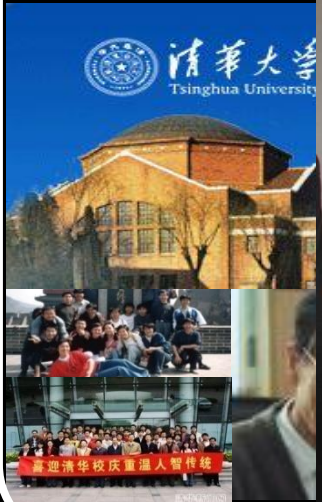
<http://www.ml-thu.net/~jun>

Tsinghua University
Dept. of Computer Science & Technology

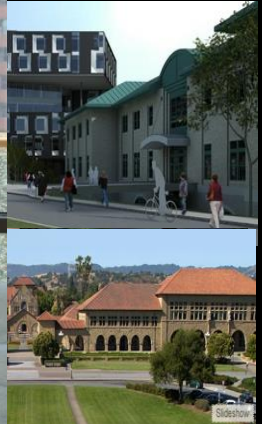


Education、 Working and Visiting Experience

01 ~ 05 Tsinghua
05 ~ 07 Tsinghua
05 ~ 09 Tsinghua



Visiting Researcher
Post-doc Fellow
10 Stanford Visiting



CMU
Stanford



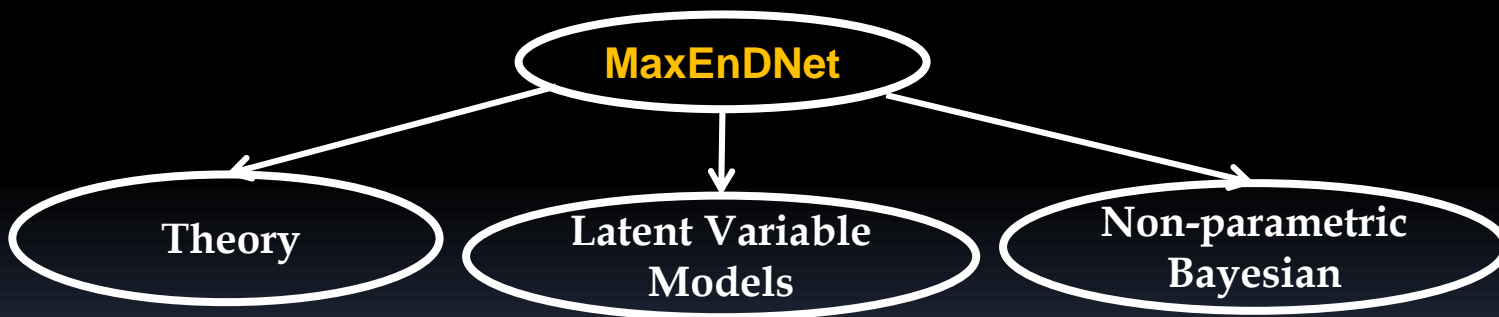
Tsinghua University
Computer Science & Technology



Structured Learning

- **Maximum Entropy Discrimination Markov Network (MaxEnDNet)**
 - a novel framework with sound theoretical guarantee;
 - generalizes to latent factor models and non-parametric Bayesian inference.

Learning Principles	Classification	Structured Prediction
Max-Likelihood Estimation (Joint)	Naïve Bayes	HMMs (<i>Math. Stat.</i> , 1966)
Max-Likelihood Est. (Conditional)	Logistic Regression	CRFs (<i>ICML</i> , 2001)
Max-Margin Learning	Support Vector Machines	Max-Margin MNs (<i>NIPS</i> , 2003)
Max-Entropy Discrimination Learning	Max-Entropy Discrimination	MaxEnDNet (<i>ICML</i>, 2008)



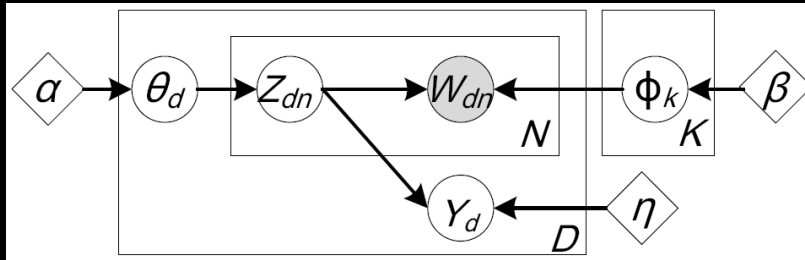
- **Representative Publications**

- Theoretical guarantee (**JMLR** 2009, **ICML** 2008, **ICML** 2009a);
- Latent factor models (**NIPS** 2008, **ICML** 2009b, **ICML** 2010, **NIPS** 2010a,b, **JMLR** 2011, **PAMI** 2011);
- Non-parametric Bayesian (**ICML** 2011, 2012, **NIPS**, 2012)



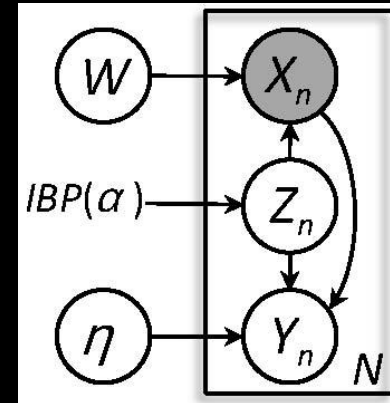
Structured Learning

- Regularized (Nonparametric) Bayesian Inference



Max-margin Supervised Topic Models

(Zhu et al., JMLR'12; Jiang, Zhu, et al., NIPS'12)



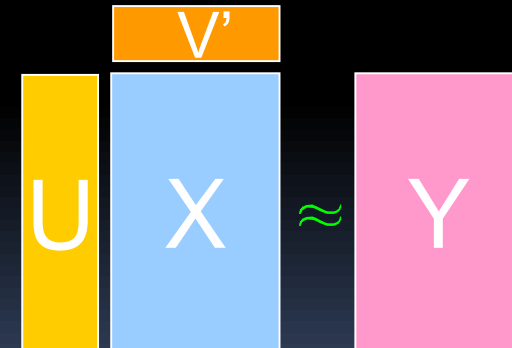
Infinite Latent SVMs

(Zhu, Chen & Xing, NIPS'11)



Nonparametric Relational Models

(Zhu, ICML'12)



Nonparametric Matrix Factorization

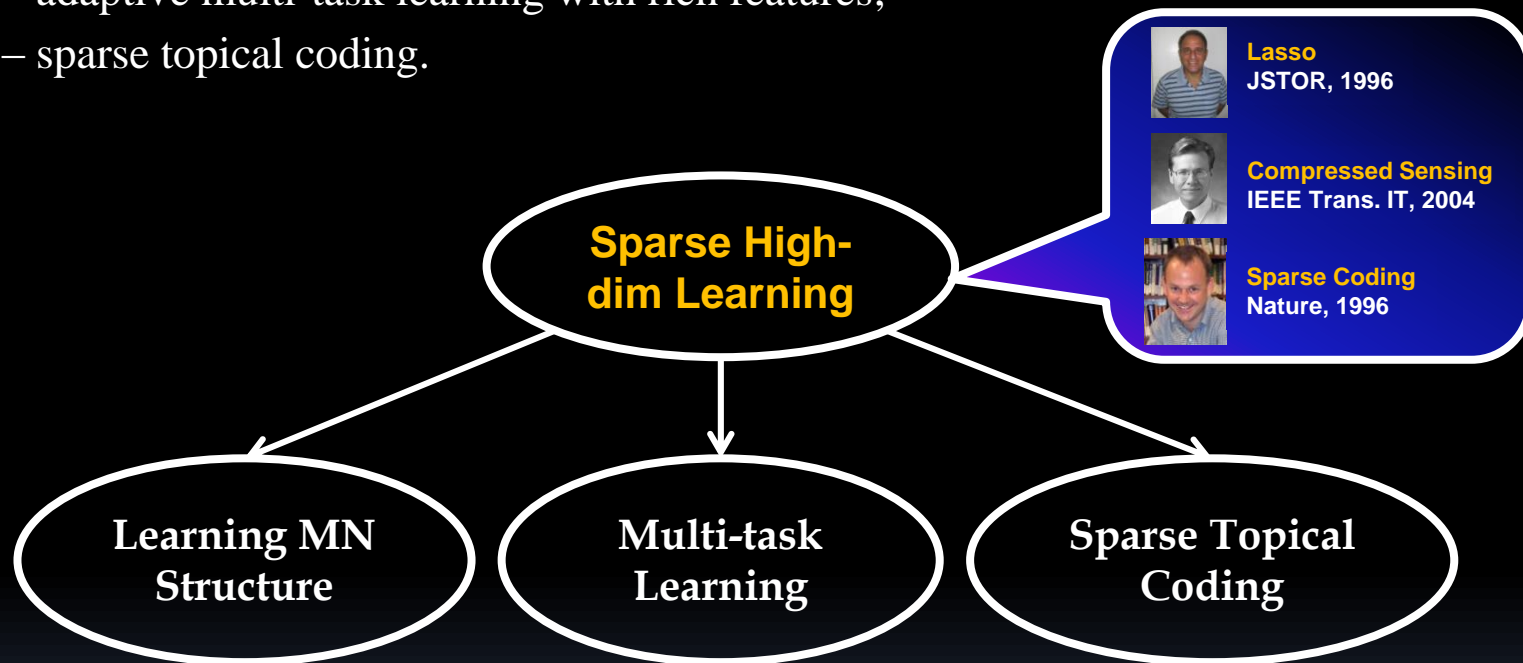
(Xu, Zhu, & Zhang, NIPS'12)



Structured Learning

- **Sparse High-dimensional Learning**

- – fast algorithms for feature selection and structure learning of Markov networks;
- – adaptive multi-task learning with rich features;
- – sparse topical coding.



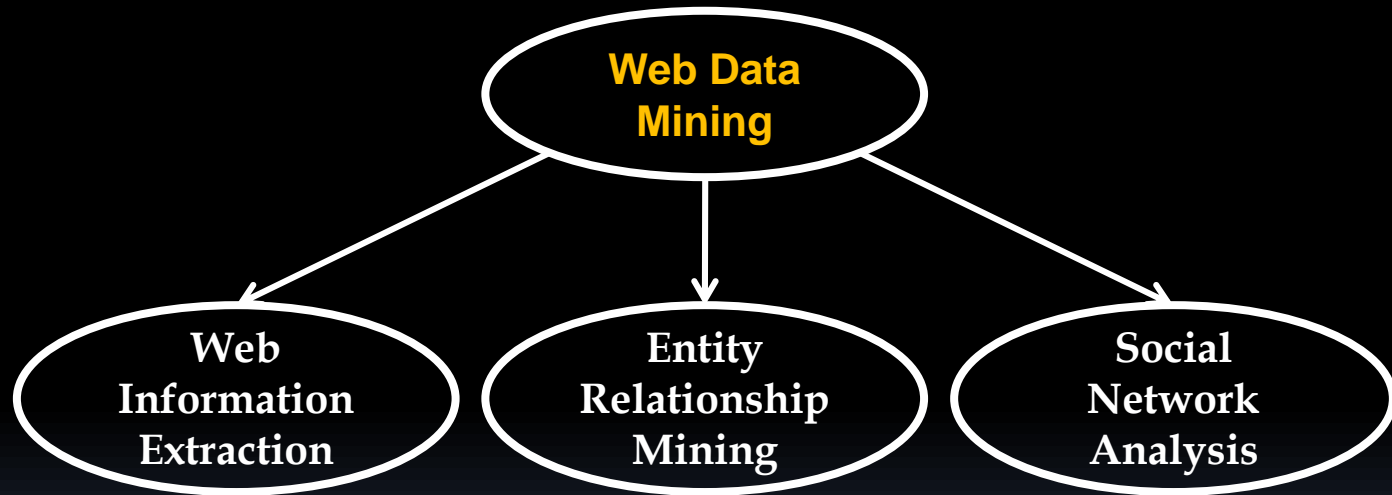
- **Representative Publications**

- – Structure learning of Markov networks (**NIPS** 2010c, **SIGKDD** 2009a, **SIGKDD** 2010);
- – Multi-task learning (**NIPS** 2010d);
- – Sparse topical coding (**UAI** 2011, **SIGKDD** 2011).



Practical Applications

- **Statistical Web Data Mining**
- – a novel statistical modeling framework for robust web data extraction;
- – bootstrapping for entity-relationship mining;
- – probabilistic graphical models for social network analysis.



- **Representative Publications**
- – Information extraction (**ICML** 2005, **SIGKDD** 2006, **SIGKDD** 2007, **ICML** 2007, **JMLR** 2008, **WWW** 2009a);
- – Entity relationship mining (**WWW** 2009b);
- – Social network analysis (**SIGKDD** 2009b).

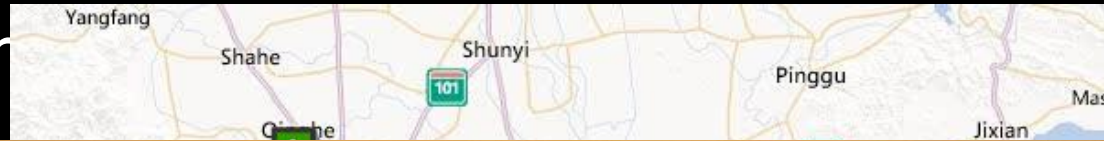


How Did I Get Here?
where “I = Jun Zhu”



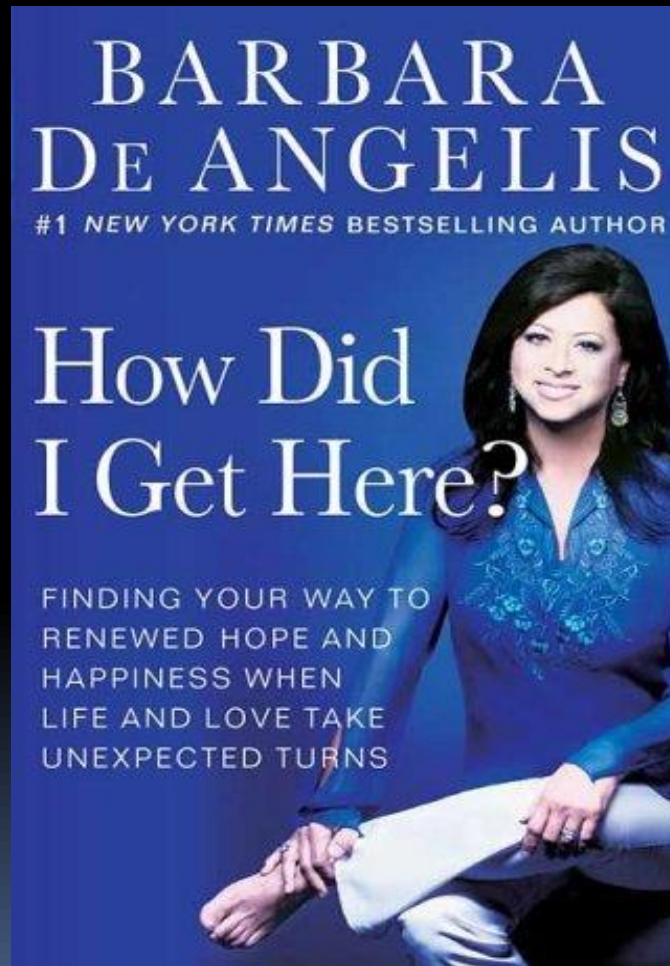
How Did I Get Here (Tianjin)?

- Thank



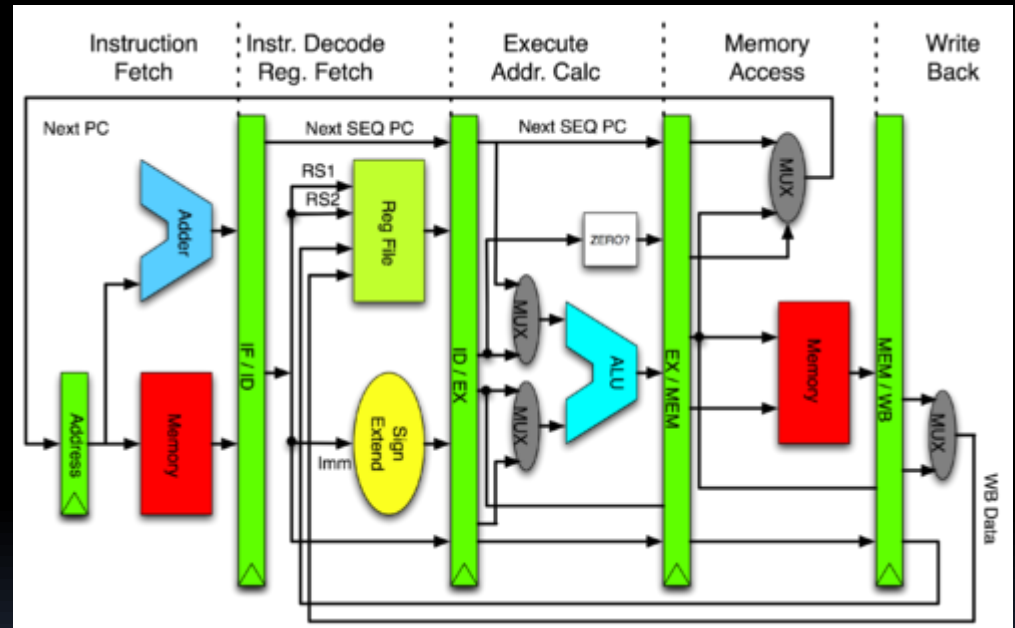
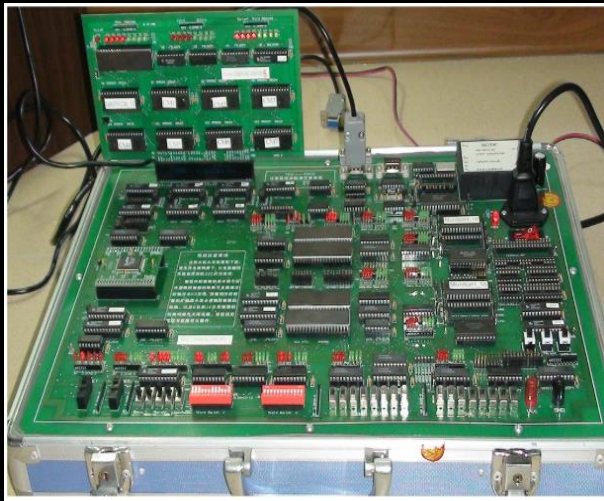
How Did I Get the **Talk Title?**

- The credits go to



How Did I Get **My Career?**

- Successful undergraduate research training on **CPU design** and **hardware**



- But, my heart leads me to AI and ML for graduate study and the career



How Did I Get to MSRA?

- A random chance for 0.5 year internship
- but, turn out to be >3 Years!
- very fruitful and enjoyable time

2D Conditional Random Fields for Web Information

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Zaiqing Nie¹
Ji-Rong Wen¹
Bo Zhang²
Wei-Ying Ma¹

¹Microsoft Research Asia, Beijing, China
²Department of Computer Science and Technology, Tsinghua University, Beijing, China



Microsoft Research Asia developing the dream

By Han Lammer

Microsoft Research Asia (MSRA), Microsoft's main research arm in the Asia Pacific region, recently released a report on the progress of its research in the field of computer science and technology. The report is a good example of the company's commitment to research and development. The report is a good example of the company's commitment to research and development. The report is a good example of the company's commitment to research and development.

Who Jian is a 2006 MSRA intern who did the team visiting America. He is doing a PhD at Tsinghua University. He started his internship in November and finished his work in March.

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明日之星 实习生项目

清华大学 朱军

在微软亚洲研究院“明日之星”实习生项目中表现优秀，特颁发2006年度“教育部-微软产学研合作教育基地优秀实习生”证书，以资鼓励。

张尧学 教育部副部长
沈向洋 微软亚洲研究院院长

Microsoft Research

2007/08
Graduate Research Fellowship Award

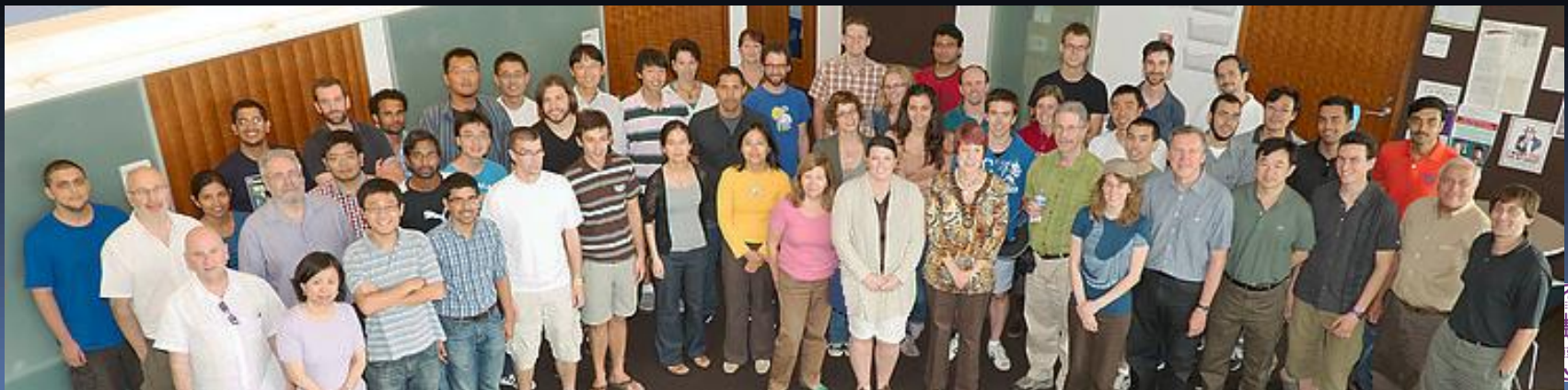
Tsinghua University
Jun ZHU

Harry SHUM, Managing Director
Microsoft Research Asia



How Did I Get to CMU?

- 2007, sponsored visit by the government
- 2008, invited visit by CMU
- 2009, post-doc & project scientist with Sailing Lab



How Did I Get **back to Tsinghua**?

- Persuaded by Professor Bo Zhang to believe in the bright future
- Get the job offer after an interview
- Back to Tsinghua without looking for other places



How Did I Get **the 973 Project**?

- Probably the youngest team leader in 973 projects
- Thanks to my team members
- Special thanks to Professor **Zongben Xu** (Member of CAS) for “not just selecting for titles”

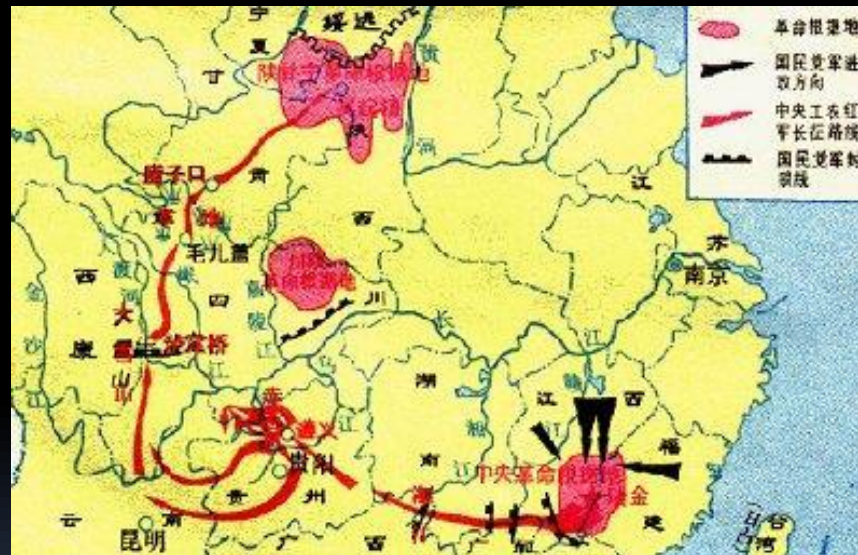


How Did I Get to **the Future**?

- Never!
- Grammar mistakes!

How Will I Get to the Future?

- Hard!
- The future is uncertain, my long march just starts



- I'll follow my heart, be confident, be persistent, and try all the best ...

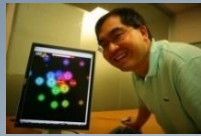
Acknowledgements

- Advisor: Prof. [Bo Zhang](#)



- Mentors & Collaborators:

- Dr. [Zaiqing Nie](#), Dr. [Ji-Rong Wen](#), Dr. [Lei Zhang](#), Dr. [Wei-Ying Ma](#) (MSRA)



- Prof. [Eric P. Xing](#) (CMU), Prof. [Li Fei-Fei](#) (Stanford)



- [Amr Ahmed](#) (CMU), [Ning Chen](#) (Tsinghua), [Ni Lao](#) (CMU), [Seunghak Lee](#) (CMU), [Li-jia Li](#) (Stanford), [Xiaojiang Liu](#) (USTC), [Xiaolin Shi](#) (Stanford), [Hao Su](#) (Stanford), [Yuandong Tian](#) (CMU), [Matt Wytock](#) (CMU).

- Students:

- [Aonan Zhang](#), [Minjie Xu](#), [Hugh Perkins](#), [Wei Li](#), [Bei Chen](#), [Kuan Liu](#).

- Funding:

