

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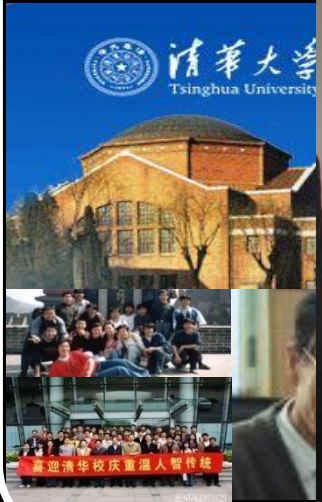
<http://www.ml-thu.net/~jun>

Tsinghua University
Dept. of Computer Science & Technology

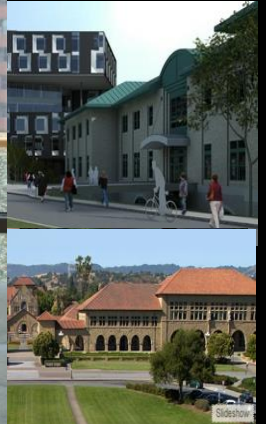


Education、 Working and Visiting Experience

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



Visiting Researcher
Post-doc Fellow
10 Stanford Visiting



CMU
Stanford



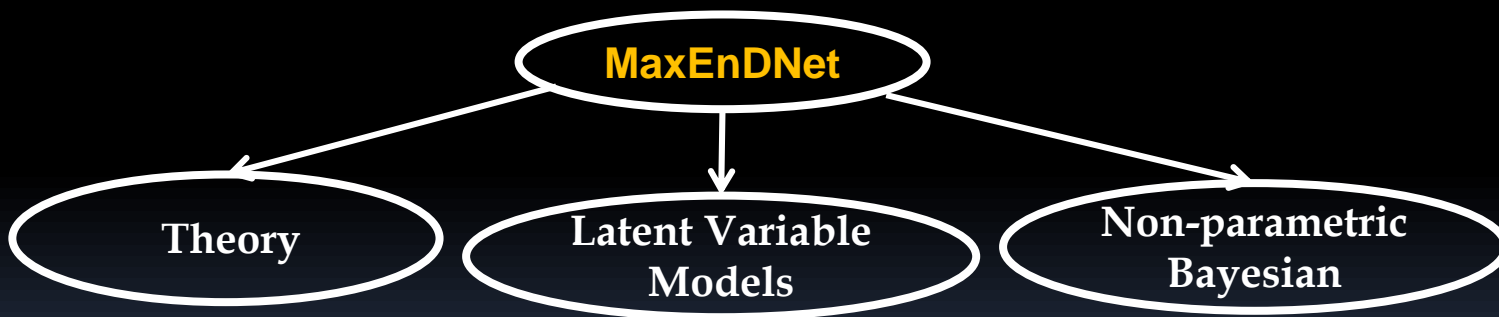
Tsinghua University
Computer Science & Technology



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)



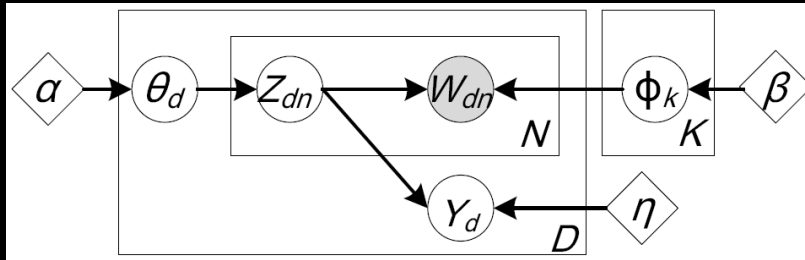
- **Representative Publications**

- 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)

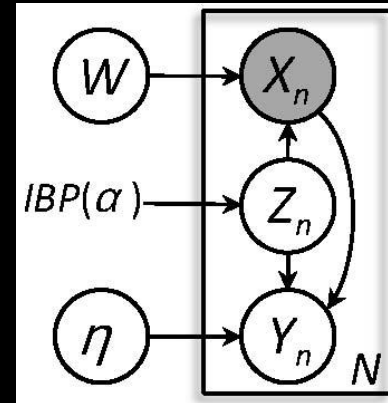


Structured Learning

- Regularized (Nonparametric) Bayesian Inference



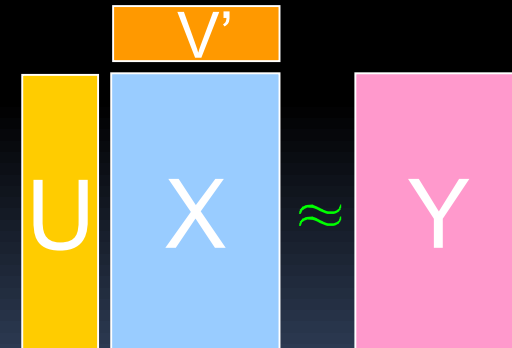
Max-margin Supervised Topic Models
(Zhu et al., JMLR'12; Jiang, Zhu, et al., NIPS'12)



Infinite Latent SVMs
(Zhu, Chen & Xing, NIPS'11)



Nonparametric Relational Models
(Zhu, ICML'12)

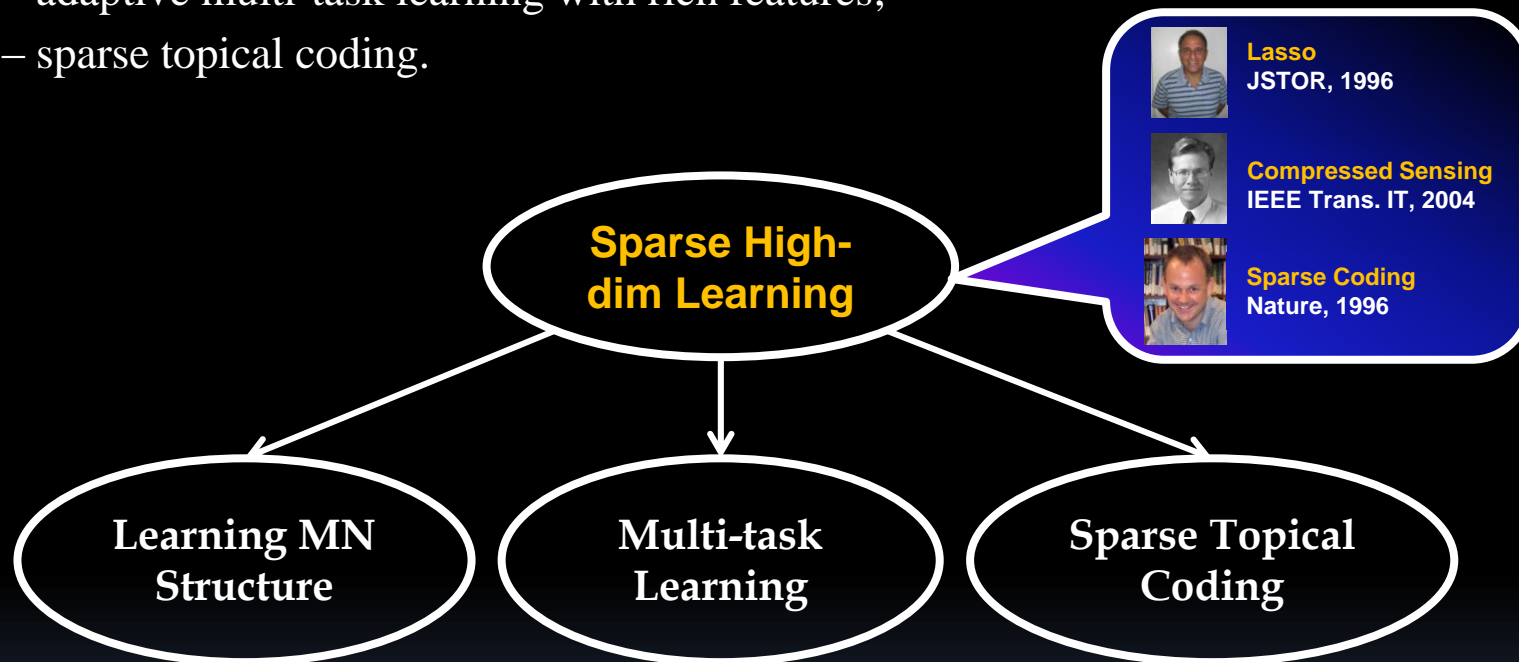


Nonparametric Matrix Factorization
(Xu, Zhu, & Zhang, NIPS'12)

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.



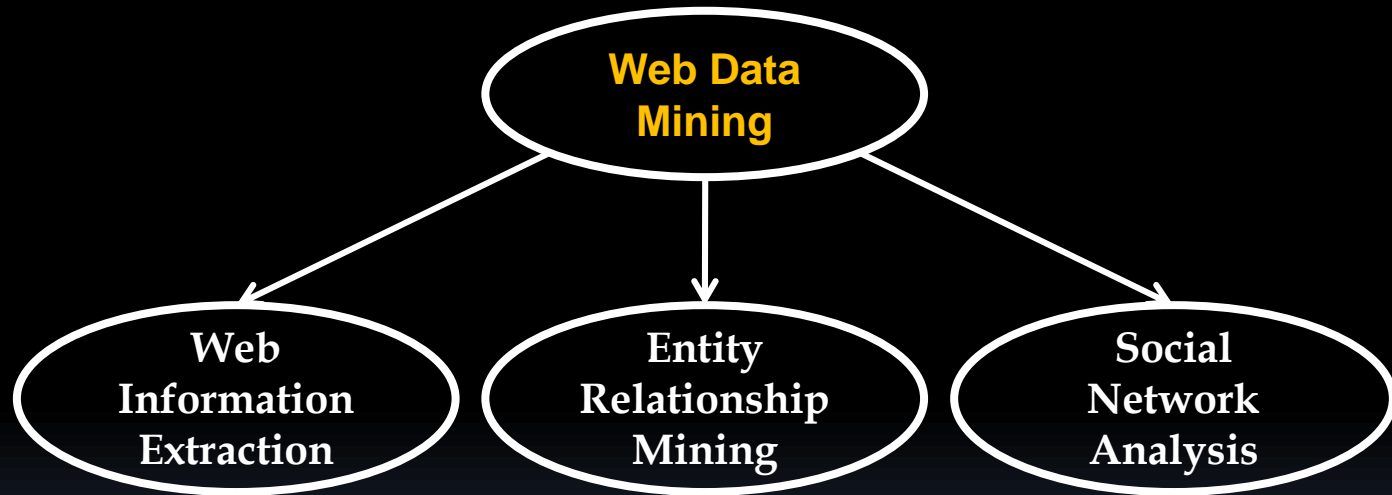
- **Representative Publications**

- – 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).

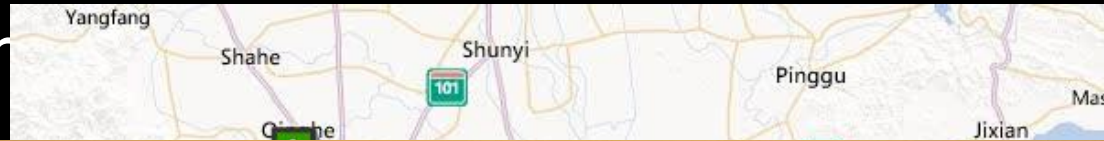


How Did I Get Here?
where “I = Jun Zhu”



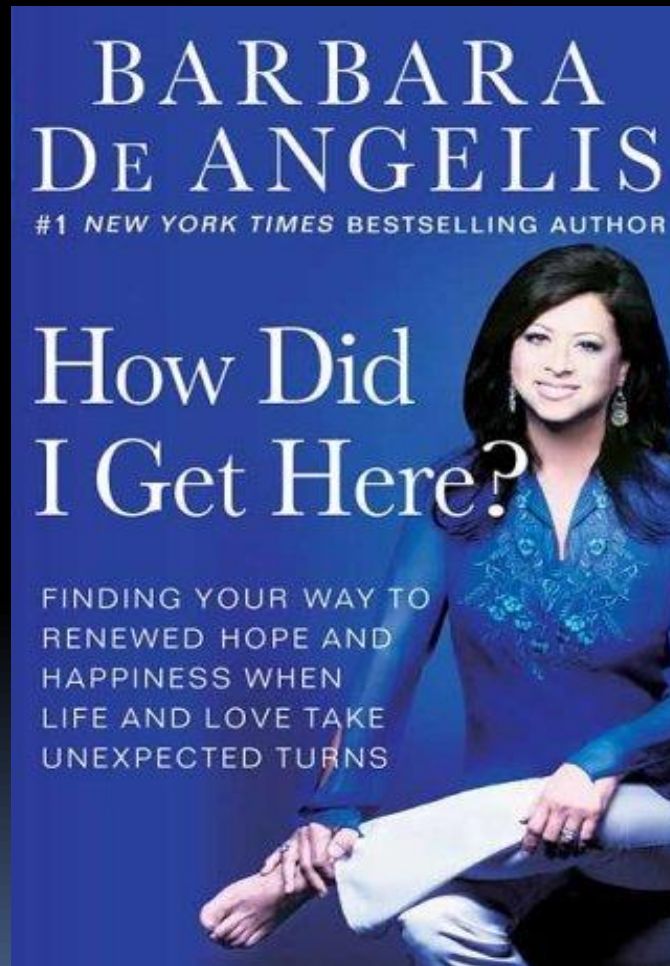
How Did I Get Here (Tianjin)?

- Thank



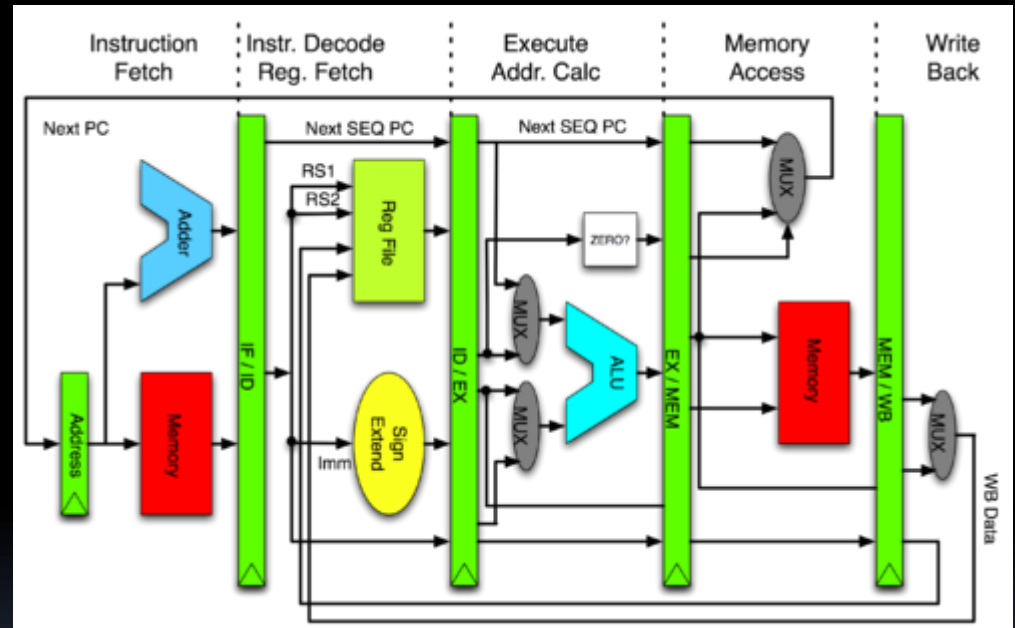
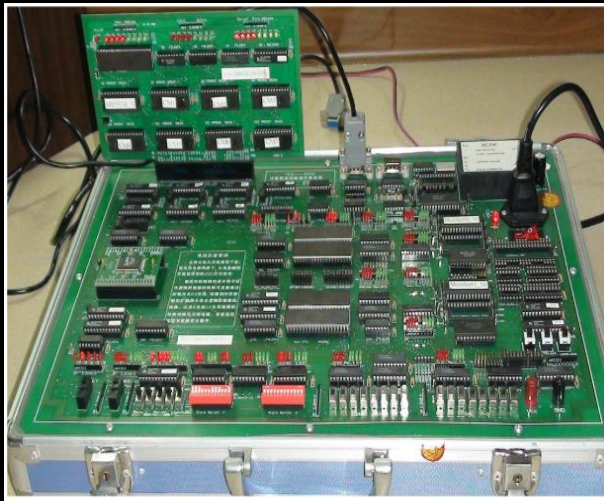
How Did I Get the **Talk Title?**

- 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 Credit: Coursera



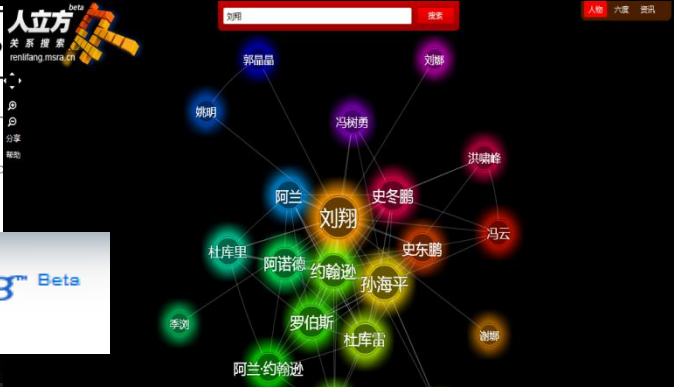
How Did I Get to MSRA?

- 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
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Microsoft Research Asia developing the dream

By Han Limbert

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.

Jun Zhu is a second-year Microsoft Research Intern focusing on machine learning. He is doing a PhD at Tsinghua University. He started his internship in November last year. He is doing a PhD at Tsinghua University. He started his internship in November last year. He is doing a PhD at Tsinghua University. He started his internship in November last year.

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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

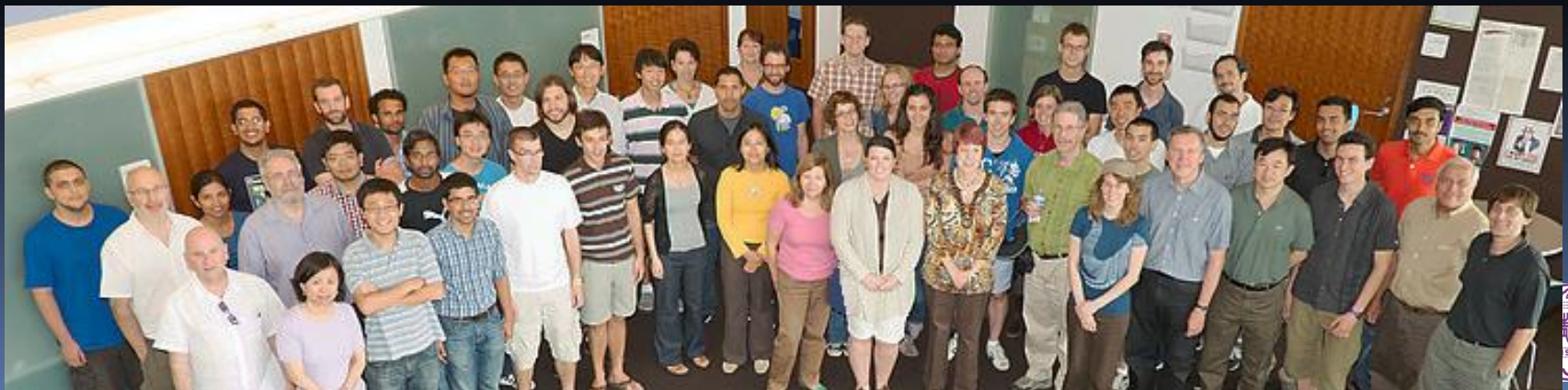
Tsinghua University
Jun ZHU

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”

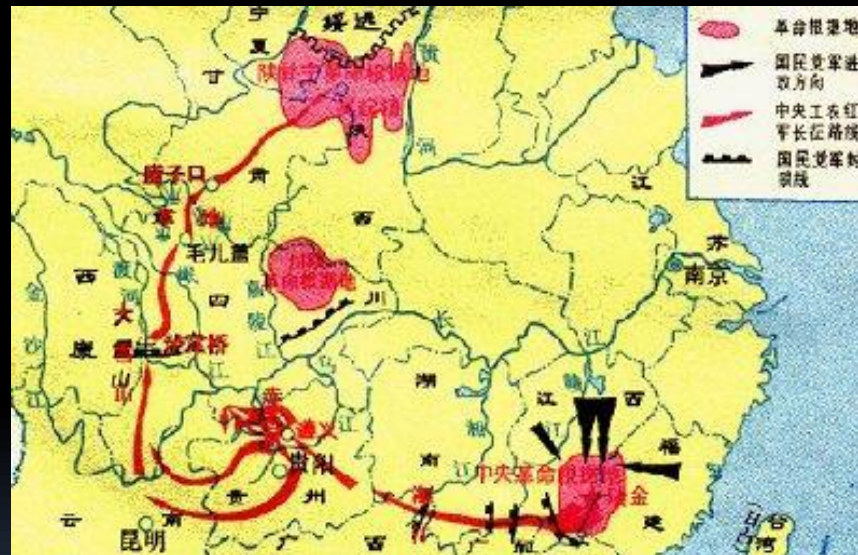


How Did I Get to **the Future**?

- 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 ...

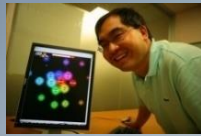
Acknowledgements

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- 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:

