Chen Liu

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Education

- **École Polytechnique Fédérale de Lausanne(EPFL)** **Lausanne,Switzerland**
  M.S in Computer Science *2015-Present*
  GPA: 5.72/6.00 (Until Now) Transcript
- **Tsinghua University** **Beijing,China**
  B.ENG in Computer Science and Technology *2011-2015*
  GPA: 91.34/100.00 Rank 9/123 Transcript Graduated with Distinction

Research & Work Experiences

Research Interests

Machine Learning, Deep Learning, Convex Optimization, (Medical) Image Processing, Natural Language Processing.

Internship

- **Siemens Research (USA)** **Jul,2016–Feb,2017(Expected)**
  Princeton, New Jersey, USA *Research Intern*
  - Learn about Siemens' ray-tracing based cinematic renderer. (more info)
  - Tune rendering parameter of Siemens' cinematic renderer automatically using deep learning.
  - Main challenge: large dataset management, model design, action learning.

Main Projects

- **Optimization methods for Recurrent Neural Networks by Non-Euclidean Geometry** **Jan,2016–Present**
  Supervised by Prof. Volkan Cevher, EPFL *Master Research Project*
  - Analyze Lipchitz continuity property of the loss function of recurrent neural networks.
  - Propose an optimization method based on Schatten-∞ norm called Stochastic Spectral Descent (SSD).
  - Analyze the stability and the convergence of recurrent neural network.
  - Numerical analysis, including the stability and convergence of singular value decomposition (SVD)
  - Low-level GPU implementation using CUDA.
  - Plan to submit a paper to ICML 2017.
  - Main challenge: complicated maths derivation based on matrix, numerical analysis.
- **Recurrent Convolutional Neural Network for Semantic Classification** **Dec,2014–Jun,2015**
  Supervised by Prof. Xiaolin Hu, Tsinghua University *Bachelor Thesis*
  - Build recurrent convolutional neural network using Theano.
  - Application of recurrent convolutional neural network in different semantic classification problems.
  - Analyze how recurrent connection mixes hierarchical features in a single layer.
  - Main challenge: scalable and robust model design, training efficiency, failure analysis.
- **Automatic Summarization of Chinese Microblogs** **Mar,2014–Jul,2014**
  Supervised by Prof. Hua Xu, Tsinghua University *Bachelor Research Training*
  - Cluster word vectors to find synonyms and antonyms.
  - Sentence pattern match to generate summaries.
  - Main challenge: cluster informal words, typo tolerance.
- More detailed information about these research works can be found on liuchen1993.cn/HomePage/main/research.html.
- Smaller Projects, including deep learning, graphics, software engineering and hardware design, can be found on liuchen1993.cn/HomePage/main/projects.html.

Technical and Personal skills

- Programming Language: C/C++, Python(skilled); Matlab, Java(Average); Scala, Golang, Lua(Beginner).
- Deep Learning Tools: Theano/Lasagne, Caffe, Torch, GPU Programming in Cuda
- Other Technical Skills: Git/SVN, HTML/Javascript, Cloud Computing
- Practical Skills: Microsoft Office, LaTeX, Markdown.
- Natural Language: Mandarin Chinese(Native), English(Fluent).

Awards

- Outstanding Graduates of Department of Computer Science and Technology in Tsinghua University. (2015.07)
- Scholarship of Academic Excellence in Tsinghua University. (2014.10)
- Scholarship of Social Work in Tsinghua University. (2013.10)
- Scholarship of Academic Excellence in Tsinghua University. (2013.10)
- First prize of Physics Competition for College Students in Beijing. (2012.12)

Voluntary Work

- **Caring for Girls in Gansu Province** **Jul, 2012**
  Guided by National Health and Family Planning Commission *Summer Investigation*
  - Investigate living and educational conditions of girls in two state-level poverty-stricken county in Gansu China.
  - Submitted paper wins second prize in national competition.

External Links

- HomePage: Smaller Projects & Major Courses. http://liuchen1993.cn/HomePage/main/home.html
- Github: Codes. https://github.com/liuchen11
- LinkedIn: profile. https://www.linkedin.com/in/chen-liu-97826265