# Chen Liu

EPFL STI IEL LIONS ELD 244 (Bâtiment ELD), Station 11 – Lausanne, Switzerland – 1015

+41 78 838 33 84 • chen.liu@epfl.ch • Birth: 21st,Jan,1993

## Education

- **École polytechnique fédérale de Lausanne(EPFL)** **Lausanne, Switzerland**
  *PhD in Computer Science, Supervised by Prof. Volkan Cevher* *2017-*
- **École polytechnique fédérale de Lausanne(EPFL)** **Lausanne, Switzerland**
  *M.S in Computer Science* *2015-2017*
  GPA: 5.73/6.00 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, Image Processing.

### Internship

- **Siemens Research (USA)** **Jul,2016–Feb,2017**
  *Princeton, New Jersey, USA* *Research Intern*
  - Siemens has developed a cinematic renderer (more info) which can render CT data into a both scientific and artistic image. To obtain high-quality image, people have to tune many rendering parameters and this is not very efficient. My task is to apply deep learning techniques to automatically tune these parameters.

### Main Projects

- **Optimization methods for Recurrent Neural Networks by Non-Euclidean Geometry** **Jan,2016–Jul,2016**
  *Supervised by Prof. Volkan Cevher, EPFL* *Master Research Project*
  - Most optimization methods in neural network are based on Euclidean Geometry. We propose an optimization method called Stochastic Spectral Descent(SSD) which is based on Non-Euclidean Geometry, unlike traditional Stochastic Gradient Descent(SGD). This idea arises from a nice Lipchitz continuity property of log-sum-exp function, which is the loss function of neural networks based on softmax. In this project, we apply this technique in the recurrent neural network, which has broad application and is relatively difficult to train. (More Info)
- **Recurrent Convolutional Neural Network for Semantic Classification** **Dec,2014–June,2015**
  *Supervised by Prof. Xiaolin Hu, Tsinghua University* *Bachelor Thesis*
  - Our model, called recurrent convolutional neural network, is constructed by adding recurrent connections in convolutional neural network. Recurrent connections helps the model extract and mix hierarchical features in a single layer. Similar models have achieved success in the task of image classification. I introduce this idea to natural language processing tasks. I implement a semantic classifier using this model in this project. (More Info)
- Smaller Projects, including deep learning, graphics, software engineering and hardware design, can be found HERE.

## 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
- Natural Language: Mandarin Chinese(Native), English(Fluent).

## Awards

- Outstanding Graduates of Department of Computer Science and Technology in Tsinghua University.(2015)
- Scholarship of Academic Excellence in Tsinghua University.(2013 & 2014)
- Scholarship of Social Work in Tsinghua University.(2013)

## External Links

- HomePage: Smaller Projects & Major Courses. http://liuchen1993.cn/HomePage/main/home.html
- Github: Codes. https://github.com/liuchen11