

TAO LIN

Avenue des Bains 9/544 ◊ 1007, Lausanne
(+41) 78 801 8431 ◊ tao.lin@epfl.ch, itamtao@gmail.com

EDUCATION

École polytechnique fédérale de Lausanne, Switzerland

Sep. 2014 - Present

Master in Communication Systems, focus on data science.

Core Courses: Pattern Classification and Machine Learning, Mathematics of Data: from Theory to Computation, Big Data, Introduction to Natural Language Processing, Parallelism and Concurrency, TCP/IP Networking, and Algorithm.

Zhejiang University, China

Sep. 2010 - Jun. 2014

Bachelor of Engineering in System Science and Engineering (with honor).

Overall GPA : 3.83/4.0 (87.69/100), Major GPA : 3.93/4.0 (88.42/100)

Relevant Courses: Calculus, Linear Algebra, Differential equations, Probability, Applied statistics, Operational Research, Control Theory, Object-oriented programming, Computer network, and some core courses of Electrical Engineering.

WORK EXPERIENCE

Teaching Assistant

Sep. 22, 2016 - Dec. 22, 2016

Master Level Course: Machine Learning

EPFL, Switzerland

- Assisted in the design and the maintenance of practical/theory exercises and projects.

Data Analyst Intern

Jun. 23, 2016 - Sep. 23, 2016

Internship at Mitobridge Inc.

Boston, USA

- Responsible for the project: Prioritization of Novel Indications for Existing Pharmaceutical Targets.
- Implemented various approaches to retrieved data from the Internet, and process the dirty datasets through traditional NLP techniques.
- Designed and developed the workflow for data reconciliation and undermine the potential indication for existing targets.

Data Analyst Intern

Feb. 22, 2016 - Jun. 22, 2016

Internship at LISP Lab, EPFL

Lausanne, Switzerland

- Built a distributed crawler to retrieve the publications of NCBI.
- Designed and Implemented a distributed text mining algorithm through Spark to evaluate the co-occurrence score of terms in sentence- and document- level.
- Surveyed the recent developments in NLP, especially related Deep Learning and their applications in relation extraction, and tried to implement a Convolution Neural Network to extract term interaction.

PUBLICATIONS

Conference

- Rachid Guerraoui, Anne-Marie Kermarrec, **Tao Lin**, Rhicheck Patra (alphabetical order). **What You Might Like To Read After Watching Interstellar**. The 43rd International Conference on Very Large Data Bases (VLDB 2017), Munich, Germany, 2017 (Under submission)
- Tao Lin**¹, Tian Guo¹, Karl Aberer. **TreNet: Hybrid Neural Network for Learning the Local Trends in Time Series**. The 5th International Conference on Learning Representations (ICLR 2017), Toulon, France, 2017 (Under review)

¹These two authors contributed equally.

- Zhenyu Wen, **Tao Lin**, Renyu Yang, Alexander Romanovsky, Raj Ranjan, Jie Xu and Changting Lin. **Security-Aware Microservice Orchestration under Uncertainty of Geo-distributed Clouds**. IEEE International Conference on Computer Communications (INFOCOM 2017), Atlanta, GA, USA, 2017 (Under review)

Journal

- Zhenyu Wen, Renyu Yang, Peter Garraghan, **Tao Lin**, Jie Xu and Michael Rovatsos. **Fog Orchestration for IoT Services: Issues, Challenges and Directions**. IEEE Internet Computing, IEEE Computer Society (To appear, SCI-IF = 1.713 and Q1)
- Laurent Mouchiroud, Vincenzo Sorrentino, Evan G. Williams, Matteo Cornaglia, Michael V. Frochaux, **Tao Lin**, Amandine A. Nicolet-dit-Félix, Gopal Krishnamani, Tarik Ouhamd, Martin A.M. Gijs, Bart Deplancke, Johan Auwerx. **The Movement Tracker: A flexible system for automated movement analysis in invertebrate model organisms**. Current Protocols in Neuroscience.

RESEARCH WORK

Sequence Mining with Convolutional Recurrent Neural Network

Aug. 2016 - Present

Master Thesis at LSIR

Lausanne, Switzerland

- Proposed a framework that aims to learn from noisy and non-stationary time series and then forecasting the future trend or duration of the time series based on such learnt features.

Skin Detection under Unconstrained Lighting Conditions

Nov. 2016 - Present

- Implemented a Convolutional Neural Network that can embed learnt scene illumination to classify skins.

Parallel Composition of Multi-Cloud Services

Oct. 2015 - Jun. 2016

- Modeled the uncertainty and security problem of QoS service selection on the clouds, and transferred the real problem to a constrained multi-objective optimization problem.
- Designed a scalable genetic algorithm to solve the composition of multiple-cloud services in parallel.

Cross-Domain Recommender System

Feb. 2015 - Dec. 2015

Semester Project at LPD

Lausanne, Switzerland

- Designed and established a *Collaborative Filtering algorithm* on the top of *Spark* for Amazon dataset.
- Proposed a novel path-based similarity extension metric to compute the inter-item similarities over several domains, and leverages differential privacy mechanism to cope with the privacy aspect.
- Tackled the “heterogeneity”, “privacy” and “scalability” challenges of recommender system.
- Improved the recommendation quality over alternative approaches by a margin of 6.2%, and scaled up by 5.2× when increasing to a cluster size of 15.

HONORS & AWARDS

- Zhejiang University Outstanding Graduates 2014
- 1st prize of MITSUBISHIELECTRIC Automation Competition 2013
- Excellent Merit Student, Zhejiang University 2011, 2012, 2013
- 1rd prize of Excellent Undergraduate Scholarship, Zhejiang University 2011

TECHNICAL STRENGTHS

Tools

Git, L^AT_EX, Vim

Operating Systems

Linux, OS X

Programming Languages

Python, Scala, Java, R, Matlab, C/C++, SQL, PHP

Frameworks and Platforms

Docker, Apache Hadoop, Apache Spark, MongoDB, Google Cloud, Tensorflow