

TAO LIN

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EDUCATION

Zhejiang University <i>B.Eng. in Computer Science and Technology</i>	Oct. 2012 - Present <i>Hangzhou, China</i>
Overall GPA: 3.96 / 4.00 (92.45 / 100)	
The third year GPA: 4.00 / 4.00 (94.43 / 100)	
Rank: 1 st in Qizhen Honors Class, Chu Kochen Honors College (Top 2%)	
Hong Kong University of Science and Technology (HKUST) <i>Exchange Student for Final Year Project</i>	Sept. 2015 - Feb. 2016 <i>Hong Kong</i>

PUBLICATIONS

Mobility Viewer: A Eulerian Approach for Studying Urban Crowd Flow

Yuxin Ma, **Tao Lin**, Zhendong Cao, Chen Li, Wei Chen

IEEE Transactions on Intelligent Transportation Systems. Accepted, 2015. [\[PDF\]](#) [\[Video\]](#)

TieVis: Visual Analytics of Evolution of Interpersonal Ties

Tao Lin, Fangzhou Guo, Yingcai Wu, Wei Chen, Biao Zhu, Sidong Wang, Huamin Qu

IDAVis 2016: Workshop on Intelligent Data Analytics and Visualization. Submitted. [\[PDF\]](#) [\[Video\]](#) [\[Code\]](#)

EXPERIENCE

Visual Analytics Group, State Key Lab of CAD&CG <i>Research Assistant</i>	June 2013 - Aug. 2015 <i>Zhejiang University, China</i>
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Research Advisor: Professor Wei Chen [\[Homepage\]](#)

- Administrated a computer cluster with 20 nodes for more than one year.
- Processed large-scale data on the group's cluster with Hadoop and Spark for more than one year.
- **Project Mobility Viewer** - A visual analytics system supporting situation-aware understanding and visual reasoning of human mobility. [\[PDF\]](#)[\[Video\]](#)
Core Team Member
 - Preprocessed tera-scale data on the cluster with Spark.
 - Designed a distributed algorithm to detect and eliminate ping-pong effects.
 - Designed and implemented the Flow Volume Analysis Subsystem.
 - Technique: MapReduce, Hadoop, Spark, Python, JavaScript (D3, WebGL), OpenStreetMap.
- **Project TieVis** - A visual analytics framework and system that enables interactive analysis and exploration of the dynamic changes of interpersonal ties. [\[PDF\]](#) [\[Video\]](#) [\[Code\]](#)
Project Leader
 - Preprocessed the data with Python (Extract, Aggregate, PCA and MDS).
 - Designed and implemented the whole TieVis System.
 - Technique: Python(NumPy, SciPy, scikit-learn), JavaScript.

Multimedia Technology Research Center <i>Visiting Intern</i>	Sept. 2015 - Feb. 2016 <i>HKUST, Hong Kong</i>
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Supervisor: Professor S.-H. Gary Chan [\[Homepage\]](#)

- Worked with a team that has been developing Streamphony, a next-generation streaming cloud for large-scale high bit-rate applications over the global Internet; helped turn research results into a practical system for commercial trials.
- Implemented the forward error correction (FEC) module with Reed-Solomon codes.
- Improved the quality and robustness of the video stream.
- Currently developing a data analysis system for the proxy records with HBase.
- Technique: C++ (STL, Boost (asynchronous, memory pool and smart pointer)), lock-free programming, code review, unit testing (Google Test, Google Mock), Hadoop (HBase).

HONORS AND AWARDS

Google Excellence Scholarship <i>One of 58 bachelor and master's students in Mainland China</i>	2015 Google Inc.
National Scholarship <i>Top 1% students</i>	2014 - 2015 Ministry of Education, China
First-Class Scholarship for Outstanding Students <i>Top 3% students</i>	2013 - 2014, 2014 - 2015 Zhejiang University
Honorable Mention, Interdisciplinary Contest in Modeling	2015
Second Prize, Zhejiang University Programming Contest	2014
Third Prize, ACM-ICPC China Zhejiang Provincial Programming Contest	2014

SELECTED PROJECTS

MiniSQL Database Management System <i>Team Leader</i>	Sept. 2014 - Nov. 2014 <i>Course Project</i>
<ul style="list-style-type: none">· Designed and implemented a DBMS, which can create/delete/query tables/indexes/records by interpreting SQL.· Modules: Interpreter, API, Catalog Manager, Record Manager, Index Manager, Buffer Manager.· Technique: C++, Parser, Cache Replacement (LRU), B+ Tree.	
Visual Analysis of Library Data <i>Team Leader</i> [Video] [Code]	Apr. 2014 - May 2015 <i>Student Research Training Program</i>
<ul style="list-style-type: none">· Promoted library users' decision-making by interacting with real records.· Designed and implemented a visual analysis system.· Technique: JavaScript (D3, Bootstrap, ECharts and jQuery), Python (Django), Oracle Database.	
Precomputed Shadow Fields for Dynamic Scenes <i>Independent</i> [Code]	Mar. 2015 - July 2015 <i>Course Project</i>
<ul style="list-style-type: none">· Implemented a system for rendering dynamic soft shadows based on the methodology outlined in a paper from SIGGRAPH 2005.· Course: Advances in Computer Graphics, Score: 94/100, Instructor: Kun Zhou.· Technique: C++ (DirectX), HLSL, precomputed radius transfer, spherical harmonics.	
A 3-D Auto-Stereoscopic Front Projection System <i>Team Member</i> [Video]	July 2014 - May 2015 <i>Challenge Cup Competition</i>
<ul style="list-style-type: none">· Worked with a team of optical engineering students to achieve glasses-free 3D by using 60 projectors.· Derived the core mathematical formulas by light field reconstruction principles.· Implemented the prototype with OpenGL.	

TECHNICAL STRENGTHS

Computer Languages	C/C++, JavaScript, Python, Java, MATLAB, Verilog
Libraries & Frameworks	Visualization (D3, ECharts) C++ unit testing (Google Test, Google Mock)
Tools	Computer graphics & vision (OpenGL, DirectX, WebGL, OpenCV) Data science (Hadoop, Spark, Hive, HBase, MySQL) Software engineering (Unix Command, Makefile, Git, Phabricator)