

Yang Li

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Education

Ph.D. in Computer Science, Stanford University, 2011 - 2017. GPA: 3.752

Dissertation: Exploiting Shared Structures in Large GPS Trajectory Datasets under Uncertainty
Advisor: Leonidas J. Guibas

B.A. Double major in Computer Science and Mathematics, Smith College, 2007 - 2011. GPA: 3.91

Honors Thesis: Inverse Kinematics Methods for the Protein Loop Closure Problem
Advisor: Ileana Streinu

Honors, Awards, & Fellowships

Stanford Graduate Fellowship in Science and Engineering, Stanford University (2012)
Highest Honors Thesis in Computer Science, Smith College (2011);
Pokora Prize for Excellence in Mathematics, Smith College (2011);
Bert Mendelson Prize for excellence in computer science, Smith College, (2009, 2011),
Mellon Mays Undergraduate Research Fellowship, Smith College, 2009-2011.
Dean's List and First Group Scholar, Smith College, 2007-2011,
Smith Summer Undergraduate Research Fellowship, Smith College, Summer 2008.

Research Experience

Postdoctoral Researcher

July 2017 - Present

IoT and Cyber-Physical System Lab, Tsinghua-Berkeley Shenzhen Institute.

Principal Investigator: Lin Zhang

- Develop algorithms for computing novel semantic embeddings for images
- Designed an efficient, interpretable and easy-to-compute metric for transferability in task transfer learning based on information theory
- Help Ph.D. and master students with their research in mobility data mining and machine learning
- Regularly hold reading group and give lectures related to current research

Graduate Research Assistant

July 2012 - December 2016

Geometric Computing Lab, Stanford University.

Advisor: Leonidas J. Guibas

- Developed algorithms to predict path travel time from trajectories of limited number of mobile sensors
- Devised algorithms for reconstructing dense vehicle trajectories from sparse GPS samples without map data
- Designed a data-driven algorithm to solve the map matching problem with uncertain input
- Regularly presented findings at research group meetings

Graduate Research Assistant **April 2011 - June 2011**
First Year Research Rotation Program, Computer Science Department, Stanford University.
 Advisor: Kenneth Salisbury

- Researched and implemented collision detection algorithms for craniofacial surgery simulation

Graduate Research Assistant **September 2011 - March 2011**
First Year Research Rotation Program, Computer Science Department, Stanford University.
 Advisor: Leonidas J. Guibas

- Developed techniques for analyzing leader-follower relationships in trajectories, and applied to study collective motion of cows
- Competed in a finalist team in Qualcomm Innovative Fellowship 2012 with research proposal, *Exploring Causality in Mobility Data*
- Regularly presented findings at research group meetings

Summer Intern **May - August 2011**
Linkage Lab, Smith College

- Optimized internal workflow of KINARI-Web, a web server for protein rigidity and flexibility analysis. KINARI-Web is available at <http://kinari.linkage.cs.umass.edu/> .
- Implemented honors thesis results on protein gap detection and completion as C++ modules of KINARI library

Undergraduate Fellow **May 2009 - April 2011**
Mellon Mays Undergraduate Research Fellowship Program, Smith College
 Faculty mentor: Ileana Streinu

- Presented honors thesis to President and Provost
- Conducted research on finding inverse kinematics solutions for short robotic chains, presented results to Mellon Mays Advisory Board
- Researched robotic representations of proteins, presented results in Computational Biology Seminar
- Developed and maintained KINARI-Web in collaboration with members of Prof. Streinu's [Linkage Lab](#) .

Research Assistant **November 2007 - May 2009**
Ileana Streinu, Computer Science Department, Smith College

- Improved usability and functionality of KINARI GUI front-end and visualizer, predecessor of KINARI-Web
- Demonstrated KINARI front-end/visualizer at 2009 Barbados Workshop on Computation Geometry. Gave related poster presentation at Collaborations 2009, Smith College; and at Consortium for Computing Sciences in Colleges: Northeastern Region 2009, SUNY Plattsburgh
- Maintained internal bibliography system by editing citations, searching and uploading articles
- Modeled kinetic structures using Solidworks, prepared figures for Linkage Lab publications.

Undergraduate Researcher **May - August 2008**
Women in Science Summer Research Fellows Program, Clark Science Center, Smith College

- Actively participated in meetings and brainstorm sessions of Linkage Lab on protein modeling and visualization topics
- Researched and evaluated existing protein visualization software
- Designed and prototyped KINARI GUI front-end and visualizer

Publications

Papers

Yajie Bao*, Yang Li*, Shao-Lun Huang, Lin Zhang, Lihong Zheng, Amir R. Zamir, and Leonidas Guibas. An Information-Theoretic Metric to Transferability for Task Transfer Learning. (Under Review) (*Joint first author)

Yang Li, Dimitrios Gunopulos, Cewu Lu and Leonidas Guibas, Personalized Travel Time Prediction Using a Small Number of Probe Vehicles, *ACM Transactions on Spatial Algorithms and Systems*, Special Issue on Urban Mobility: Algorithms and Systems, 2019. (Accepted)

Jing Lian, Yang Li, Weixi Gu, Shao-Lun Huang, and Lin Zhang. Joint Mobility Pattern Mining with Urban Region Partitions. In *EAI International Conference on Mobile and Ubiquitous Systems: Computing, Networking and Services (MobiQuitous '18)*, 2018 (Best Paper Award)

Yang Li, Dimitrios Gunopulos, Cewu Lu and Leonidas Guibas, Urban Travel Time Prediction Using a Small Number of GPS-Floating Cars, *25th SIGSPATIAL International Conference on Advances in Geographic Information Systems (ACM SIGSPATIAL '17)*, 2017.

Yang Li, Yangyan Li, Dimitrios Gunopulos, and Leonidas Guibas, Knowledge-Based Trajectory Completion from Sparse GPS Samples, In *Proceedings of the 24th SIGSPATIAL International Conference on Advances in Geographic Information Systems (ACM SIGSPATIAL '16)*, 2016

Yang Li, Qixing Huang, Michael Kerber, Li Zhang and Leonidas Guibas, Large-Scale Joint Map Matching of GPS Traces, In *Proceedings of the 21th SIGSPATIAL International Conference on Advances in Geographic Information Systems (GIS '13)*, 2013.

Naomi Fox, Filip Jagodzinski, Yang Li, Ileana Streinu, *KINARI-Web: A Web Server for Protein Rigidity and Flexibility Analysis*, *Nucleic Acids Research*, 39 (Web Server Issue), 2011.

Dominique Thiebaut, Yang Li, Diana Jaunzeikare, Alexandra Cheng, Ellysha Raelen Recto, Gillian Riggs, Xia Ting Zhao, Tonje Stolpestad, and Cam Le T Nguyen, *Processing Wikipedia Dumps: A Case Study Comparing the XGrid and MapReduce Approaches*, in *Proceedings of 1st International Conference on Cloud Computing and Services Science (CLOSER 2011)*, Noordwijkerhout, NL, May 2011.

Naomi Fox, Filip Jagodzinski, Yang Li, and Ileana Streinu, *A Web-Based Tool for Rigidity Analysis of Proteins* in *Biotechnology and Bioinformatics Symposium (BIOT 2009)*, Lincoln, Nebraska, 2009.

Posters and Abstracts

Lu Li, Yang Li, Xiangxiang Xu and Lin Zhang, *A Maximal Correlation Embedding Method for Multilabel Human Context Recognition*, Poster abstract accepted to the 18th ACM/IEEE Conference on Information Processing in Sensor Networks (IPSN'19), Montreal, Canada, April, 2019

Yang Li and Leonidas Guibas, *Leader-Follower Relationships in Trajectories – a Case Study*, Abstract accepted for oral presentation at the 2012 Computational Geometry: Young Researchers Forum, Chapel Hill, NC, June, 2012

Yang Li and Ileana Streinu, *Finding Inverse Kinematics Solutions of Short Robotic Chains*, Poster abstract published in *Proceedings of Celebrating Collaborations 2010*, Smith College, April, 2010

Yang Li and Ileana Streinu, *Inverse Kinematics Algorithm on Short Robotic Chains*, Poster abstract published in *Proceedings of Women in Sciences Summer Research*, Smith College, September, 2009

Yang Li, Naomi Fox, Filip Jagodzinski and Ileana Streinu, *Protein Flexibility Analysis: A Friendly Interface*, Poster abstract published in [Proceedings of Celebrating Collaborations 2009](#), Smith College, April, 2009

Yang Li, Naomi Fox, Filip Jagodzinski and Ileana Streinu, *Developing GUI Front-end and Output Visualization for Protein Flexibility Analysis Tool*, Poster abstract published in Proceedings of Women in Sciences Smith Summer Research, September, 2008

Teaching Experience

Co-Lecturer: Learning from Data **September - December 2017**
Data Science & Information Technology Research Center, Tsinghua-Berkeley Shenzhen Institute

Guest Lecturer: Hybrid Design and Smart City **July 2017**
Data Science & Information Technology Research Center, Tsinghua-Berkeley Shenzhen Institute

Course Assistant: Design and Analysis of Algorithms **January - March 2016**
Computer Science Department, Stanford University

Course Assistant: Mathematical Foundation of Computer Science **January - March 2014,**
September - December 2015
Computer Science Department, Stanford University

Teaching Assistant: Data Structure **January - May 2008**
Computer Science Department, Smith College

Educational Activities

Student Liaison **September 2010 - May 2011**
Computer Science Department, Smith College

- Organized student events such as guest lectures and movie nights
- Publicized computer science related events using department mailing list
- Participated in monthly faculty meeting to facilitate student-faculty communication.

Peer Mentor **September 2009 - May 2010**
Science Center Peer Mentoring Program, Smith College

- Provided academic and personal support to a first-year mentee through one-to-one meetings and social gatherings
- Completed monthly online report that reflects progress and goals of mentor-mentee relationship

Academic Tutor **February - May 2008**
Northampton High School

Provided academic assistant to students with learning disabilities in a classroom setting