

YANZI JIN

University of Illinois at Chicago
Department of Computer Science
Room 1300 SEO, Chicago, IL 60607
Email: yjin25@uic.edu

<https://github.com/jinyanzi>

<http://www.cs.uic.edu/Bits/YanziJin>

RESEARCH INTEREST

Video analysis, particularly vision-related problem in real-world, including object detection and tracking, scene understanding.

EDUCATION

University of Illinois at Chicago (UIC) Chicago, IL

Ph.D. Candidate (Computer Science) Advisor: [Jakob Eriksson](#) Sept 2018 (expected)

- **Related courses:** Intro to Machine Learning, Data Mining and Text Mining, Neural Networks, Advanced Machine Learning, Linear Algebra, Applied Probability Models, Computational Statistics, CNN for Visual Recognition (Stanford online), Intro to Computer Vision (Udacity online), Machine Learning (CMU online by Tom Mitchell). **GPA: 3.85/4.0**

Dalian University of Technology (DUT) Liaoning, China

B.Eng (Software Engineering), minor in Japanese July 2012

- **Overall GPA: 3.77/4.0; Rank: 9/276 (Top 3%)**

PUBLICATION

Yanzi Jin and Jakob Eriksson, “*Fully Automatic, Real-Time Vehicle Tracking for Surveillance Video*”, 14th Conference on Computer and Robotic Vision, 2017 for **oral presentation**.

RESEARCH EXPERIENCE

Bits Networked Systems Laboratory, UIC (*Research Assistant*) May. 2013 - Present

Funded by Illinois Department of Transportation (IDOT), individually working on developing an automatic vehicle counting system to reduce human labor.

- Proposed a sensor-fusing real-time tracker for multiple objects, integrating background subtraction model (*ViBe*), object detector (*Faster-RCNN*) and optical flow, **fully automated** with automatic initialization and termination. The tracker could achieve up to **5x speedup** than frame rate with the GPU implementation.
- Designed and implemented a full-stack automatic vehicle counting system (*C++*) for traffic camera videos on top of our automatic vehicle tracker.
- Proposed an evaluation measurement that addressed the importance of initialization and termination in object tracking, particularly in real-world tracking application.
- Integrated several state-of-the-art single-object trackers into the multi-object tracking framework, along with comprehensive evaluation with standard and our proposed metrics.
- Implemented several topic models to extract motion pattern in traffic video, including LDA, HDP and HDP-HMM, and Hierarchical ddCRP.
- Developed a user-friendly GUI interface for the system by Qt and set up the remote working environment for IDOT, including SFTP and VNC server, automatic video batch processing.
- Set up a video annotation environment and led a group of 14 undergraduate students for the annotation of our dataset from IDOT, containing 11 five-minute videos with views, scale, illumination conditions variation and vehicle interactions. Dataset available on my website.
- Helped design and provided the back-end interfaces for a web-based vehicle counting portal for IDOT’s internal use.

PARC East, Webster, NY (*Individual project as an research intern*) May. 2015 - Aug. 2015

- Coordinated with Xerox security department and carried out experiment for surveillance video and GPS data collection across Xerox Webster campus, with more than 20 participants.
- Proposed a vehicle re-identification framework using geographic information.
- Developed video preprocessing tools for long time video, including moving object indexing, video trim, annotation and display.
- Experimented with various visual features of vehicles under different perspectives.

Advanced Machine Learning (*Course project, team size: 2*) Oct. 2016

- Implemented Conditional Random Field (CRF) for character recognition by PETSc and torch, respectively.
- Implemented the stochastic gradient descent (SGD) and stochastic average gradient descent with non-uniform sampling (SAG-NUS) in torch and quantitatively compared with LBFGS.
- Quantitatively analyzed wide and deep residual network, with an implementation of stochastic drop out on depth and width.

Neural Networks on Image Classification (*Individual course project*) Dec. 2014

- Implemented back propagation, HopeField, counter propagation and LAMSTAR neural network.
- Evaluated SVM and LAMSTAR neural networks for image classification on PASCAL VOC 2007 and Caltech 101 datasets.

Sentiment Classification (*Individual course project*) Feb. 2014

- Annotated a shampoo review dataset and built a Multinomial Naive Bayes sentiment classifier with uni-gram and multi-gram TF-IDF features.

GPS Trajectory Prediction (*Course project, team size: 2*) May. 2013

- Implemented a first-order Markov model with velocity and acceleration information, and evaluated it on UIC bus shuttle and Microsoft personal trace dataset.

WORK EXPERIENCE

AList, Tokyo, Japan (*Intern*) Nov. 2011 - May 2012

- Implemented periodic automatic tweets retrieval with key words through twitter API.
- Developed multiple tweets display modes and improved interface of a website called *incolle*.
- Designed and developed a prototype of a company rating system from anonymous internal employees for job hunters.
- Promoted *incolle* on Twitter and doubled advertisement income in first three months.

TEACHING EXPERIENCE

CS111: Program Design (2012 Fall)

CS450: Intro to Networking (2013 Spring)

- Created shell grading scripts to accelerate grading process.
- Set up bit-torrent simulation environment via planet lab.
- Set up Mininet for router implementation.

TECHNICAL SKILLS

Programming Language: C, C++, Python, shell, Matlab, JAVA, HTML, PHP, MySQL, Lua

Tools: OpenCV, Vim, QT, SVN, GnuPlot, GDB, Torch, PETSc, Caffe.

SERVICE

- Volunteer of 2013 Bank of America Chicago Marathon (Grant Park Runner Info Team).
- Vice president of UIC computer science graduate student association (2013 and 2015 - current).