# Jing Li


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| Contact Information | MSEE 357,<br>465 Northwestern Avenue,<br>West Lafayette, IN 47907 | **Phone:** (765)476-3344<br>**Email:** jingli@purdue.edu<br>**Homepage:** engineering.purdue.edu/people/jing.li.21 |


## Education

**Purdue University**, West Lafayette, IN
*Ph.D. student in Electrical and Computer Engineering(GPA: 4.0/4.0)* Fall 2018

**Xi'an Jiaotong University**, Xi'an, China
*M.S. in Electrical and Computer Engineering(GPA: 3.8/4.0)* July 2013
*B.A. in Japanese(GPA: 90.2/100)* July 2010

## Skills

**Programming:** Python, C++, Java, C, Matlab
**Research Area :** Computer Vision, Image Processing Algorithms, Computational Imaging, Model Based Image Reconstruction, Machine Learning Algorithms

## Research Experience

**Texas Instuments**
*Research Intern at PAL Lab*

**Research Focus: Post Processing for Image Depth Estimation** May 2018 - present
- Working on developing super-efficient post processing neural network for depth estimation

**Xmotors.ai**
*Research Intern with Yandong Guo and Cheng Lu*

**Research Focus: Image Depth Estimation from Stero Image Pairs** Feb 2018 - May 2018
- Improved current state of art disparity estimation algorithm
- Tested algorithm on KITTI, Middleburry and ETH3D datasets

**Purdue University**
*Graduate Research Assistant with Prof. Charles Bouman*

**Research Focus: Deep Learning for Unmanned Aerial Vehicles (UAVs) Detection and Tracking** Dec 2016 - Present
- Developed multi-layer UAVs detection algorithm using appearance and motion of UAVs
- Explored appearance based Convolutional Neural Network classification algorithm
- Verified algorithm on large dataset

**Research Focus: Multi-target detection/tracking from a single camera in Unmanned Aerial Vehicles (UAVs)** Dec 2014 - Dec 2016
- Integrate **machine learning method(SVM/Deep Learning)** to UAVs detection
- Established feature-based registration method for background motion estimation
- Developed motion based UAVs detection algorithm using background subtracted image
- Combined Kalman tracking to improve detection accuracy
- Optimized detection/tracking algorithm using **OpenMP** to run on Odroid board in real time
- Collaborated with Navel Postgraduate School to collect real flying videos
- Constructed dataset of 50 videos of real field test with multiple moving UAVs in view
- Publicized real flying UAV datasets by setting up website using JavaScript and HTML
- Validated algorithm on large dataset using **Python**
- Delivered code for real flying drones with automatic collision avoidance(autopilot)

**Research Focus: Dots/Character Marks Protection** Sep 2013 - Dec 2014
- Developed noise removing algorithm for scanned documents to protect dots/character marks.

**Xi'an Jiaotong University**
*Graduate Research Assistant with Prof. Xueming Qian*

**Research Focus: Refine GPS Location Estimation by Using Mined Near-Duplicate Image Groups** Jul 2012 - Sep 2013
- Improved location estimation precision by enhancing SIFT features
- Mined salient features within each near duplicated image group

**Research Focus: Places of Interest Mining** Jul 2011 - Sep 2012

- Developed algorithm to mine near-duplicate image groups for 80 places of interest
- Advised 5 undergraduate students to crawl images from social media websites
- Trained students to construct large scale image set
- Constructed GeO-tagged Large Dataset(GOLD) containing 0.22 million images covering 80 famous travel sites throughout world
- Tested and verified algorithm on constructed dataset

**Research Focus: GPS Location Estimation for Places of Interest** Sep 2010 - Jul 2011

- Developed fast algorithm of GPS location estimation for places of interest from users' uploaded image from social media using **C++**
- Constructed hierarchy structure to accelerate location estimation

**Information-Technology Talent Program (Xi'an Jiaotong University)**

*Undergraduate Research Project with Prof. Xueming Qian*

**Research Focus: Good Features for Image Classification** Sep 2009 - Dec 2009

- Developed new feature descriptor for salient point in order of image retrieval and analysis
- Combined color and HOG information to generate descriptor
- Implemented feature extraction and image classification/retrieval in **C++**
- Improved image retrieval accuracy by 10%

**Research Focus: Acoustical Signal for Video Retrieval** Dec 2009 - Sep 2010

- Applied SVM to recognize and classify acoustical signal and built a system of training and classifying acoustical signal from videos
- Extracted Mel Frequency Cepstral Coefficient (MFCC) features for videos using **MATLAB**

## Teaching Experience

**Teaching Assistant for Purdue's Model Based Image Processing** 2017/2014 Fall

- Teach students **Model Based Image Processing Algorithms**, Matlab and **C** programming
- Advised students' understanding about **MAP Image Restoration, EM Algorithm, Markov Random Fields and Image Segmentation**

**Teaching Assistant for Purdue's Image Processing I** 2015 Spring

- Advised students' understanding about **Image Filtering, Connected Components, Image Restoration/Halftoning**

## Volunteer & Leadership

**Volunteer** to work as Japanese Instructor in Aurora Studio 2008-2013

**Leadership Experience** in Mathematical Modeling Club of Xi'an Jiaotong University 2008-2013

**Organized** Microsoft Student Research Club (around 100 students) 2007-2012

## Publications

1. Ye, D. H., **Li, J.**, Chen, Q, Wachs, J., & Bouman, C. (2018). Deep Learning for Moving Object Detection and Tracking from a Single Camera in Unmanned Aerial Vehicles (UAVs). In *EI*, Best Paper Award.
2. **Li, J.**, Ye, D. H., Chung, T., Kolsch, M., Wachs, J., & Bouman, C. (2016). Multi-target detection and tracking from a single camera in Unmanned Aerial Vehicles (UAVs). In *International Conference on Intelligent Robots and Systems (IROS)*.
3. **Li, J.**, Qian, X., Lan, K., Qi, P., & Sharma, A. (2015). Improved image GPS location estimation by mining salient features. *Signal Processing: Image Communication*.
4. **Li, J.**, Qian, X., Li, Q., Zhao, Y., Wang, L., & Tang, Y. Y. (2015). Mining near duplicate image groups. *Multimedia Tools and Applications*.
5. **Li, J.**, Qian, X., Tang, Y., Yang, L., & Tao, M. (2013). GPS estimation for places of interest from social users' uploaded photos. *IEEE Transactions on Multimedia*.
6. **Li, J.**, Qian, X., Tang, Y. Y., Yang, L., & Liu, C. (2013). GPS estimation from users photos. *In International Conference on Multimedia Modeling*.

## Patents

1. Shuhui Jiang, Xueming Qian, Ke Lan, **Jing Li** & Fan Li, Social Media User Multimedia Data Management. NO. ZL 2001 1 0364974.4
2. **Jing Li**,& Xueming Qian, Hierarchical fast image global positioning system (GPS) position estimation method. CN103324677B