Tianxing Li

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EDUCATION

Jun. 2014- Present **DARTMOUTH COLLEGE** Hanover, NH
Candidate for PhD of Computer Science degree, June 2019
Advisor: Prof. Xia Zhou

Sept. 2012- Jun. 2014 **DARTMOUTH COLLEGE** Hanover, NH
Master of Computer Science
Overall GPA: 3.6/4.0
Section leader: CS65/165 Smartphone Programming from Mar. 2013 to May 2013

Oct. 2009-Dec. 2011 **AUSTRALIAN NATIONAL UNIVERSITY** ACT, Australia
Bachelor of Electronics and Telecommunications Engineering
Overall GPA: 3.3/4.0 Major GPA: 3.4/4.0, Ranking: 19/213

Sept. 2007-Sept. 2009 **BEIJING INSTITUTE OF TECHNOLOGY** Beijing, China
Bachelor of Electronics and Telecommunications Engineering
Overall GPA: 3.6/4.0, Ranking: 9/66

PUBLICATION

[1] Tianxing Li, Chuankai An, Andrew Campbell, and Xia Zhou, HiLight: Hiding Bits in Pixel Translucency Changes, *ACM Workshop on Visible Light Communication Systems (VLCS) 2014*
[2] Rui Wang, Fanglin Chen, Zhenyu Chen, Tianxing Li, Gabriella Harari, Stefanie Tignor, Xia Zhou, Dror Ben-Zeev, and Andrew T. Campbell, *StudentLife: Assessing Behavioral Trends, Mental Well-being and Academic Performance of College Students using Smartphones, Ubicomp 2014*
[3] Zhenyu Chen, Mu Lin, Fanglin Chen, Lane, N.D., Cardone, G., Rui Wang, Tianxing Li, Yiqiang Chen, Choudhury, T. Campbell, A.T., *Unobtrusive sleep monitoring using smartphones*, *Pervasive Health 2013*
[4] Fang Wang, Tianxing Li, Yi Li, *Dual deblurring leveraged by image matching*, *ICIP 2013.*

RESEARCH EXPERIENCE

Mar. 2014 - Present **DARTMOUTH COLLEGE** Hanover, NH
HiLight: Hiding Bits in Pixel Translucency Changes, *DartNets Lab*
- Built a display-camera link VLC test-bed (HiLight) using two off-the shelf smartphones
- Analyzed and evaluated the accuracy and throughput of HiLight, in terms of color factors, ambient light intensity, distance between TX/RX, and so forth.

Sept. 2013-Mar. 2014 **DARTMOUTH COLLEGE** Hanover, NH
Cutting Wi-Fi scan tax for smartphone, *DartNets Lab*
- Analyzed and evaluated existing Wi-Fi scanning performance based on power consumption and connectivity metrics.
- Rebuilt Android framework so Wi-Fi chipset within mobile devices could perform background scanning with adaptive scan interval.
- Created an algorithm to predict potential offloaded SSID list and adjust Wi-Fi scan interval, based on multiple sensing results (i.e. moving direction and GPS).

Jan. 2013-May 2013 **DARTMOUTH COLLEGE** Hanover, NH
StudentLife: Assessing Mental Health, Academic Performance and Behavioral Trends of College Students using Smartphones, *DartNets Lab*
- Researched relationship between students' daily activities, mental health, and academic performance by collecting and analyzing mobile sensors data (i.e. GPS, Bluetooth, battery usage, Wi-Fi, etc.) and survey data, such as "Flourishing" survey and "BIG five personality".
- Created an Android application to periodically collect data from Dartmouth College students.
- Built a Python and Apache server and a PHP and SQL database to store and manage the uploaded data.

Jan. 2013-Mar. 2013 **DARTMOUTH COLLEGE** Hanover, NH
Unobtrusive Sleep Monitoring using Smartphones, *DartNets Lab*
- Created a method called "best effort sleep" (BES) to predict sleep duration by exploiting a collection of soft hints that tie sleep duration to various smartphone usage patterns. (i.e. prolonged silence or the smartphone remaining unused and completely still).
- The BES model can accurately infer sleep duration (± 42 minutes) using a completely "hands off" approach that accounts for natural variations in users' sleep routines and environments.

Mar. 2011-Dec. 2012 **NATIONAL ICT CENTRE & AUSTRALIA NATIONAL UNIVERSITY** ACT, Australia
Dual deblurring leveraged by image matching, *Computer Vision Group*

- Performed a two-directional dual image de-blurring, which uses the Split Bregman method, and matched the latent clear image pairs by a homograph.
- Extended an iterative blind dual image deblurring method to handle matching penalty, and simultaneously estimate the blur kernels and recover latent clear image pair.
- This algorithm is applicable to small matching error using both synthetic and real images pairs.

Nov. 2010-Mar. 2011 **NATIONAL ICT CENTRE** ACT, Australia

Kernel-based Tracking from a Probabilistic Viewpoint, *Computer Vision Group*

- Conducted mean-shift algorithm and probabilistic viewpoint to track objects in image sequences.
- Implemented MATLAB and C++ to program kernel functions, using the method from "Q.Nguyen, A. Robles- Kelly, C. Shen, Kernel-based tracking from a Probabilistic Viewpoint. IEEE, *CVPR 2007*".

HONORS & AWARDS

- International Student Scholarship (Top 20 out of 213), ANU College of Engineering and Computer Science 2010 and 2011.
- Summer Research Scholarship, Australia ICT Research Centre, 2010 and 2011.

INDUSTRY EXPERIENCE

Jun. 2013-Aug. 2013 **THE COMPANY LAB** Chattanooga, TN

Software development engineer intern, *Sisasa, Inc.*

- Developed a mobile banking application on both Android and iOS platforms to improve financial literacy in young adults.
- Created a backend database to store financial literature, utilizing Amazon S3 server.
- Integrated gamification elements, such as ranking and achievements, into the banking application.
- Cooperated with TransCard, LLC. to secure users' banking information.

Jan. 2012-Aug. 2012 **BEIJING FULIKE CO., LTD** Beijing, China

Software development engineer

- Designed and created a new software, "User Management System for Hemodialysis", for hospitals to manage patients' information. The system has been tested and used in at least three large hospitals in Beijing since June 2012. Each of them has more than 300 patients.
- Designed and executed new UI for the system, using Java SWT.
- Coded and implemented a driver for the system to communicate between port 232 and USB port.
- Created an SQL database for the system backend.

COMPUTER SKILLS

- Expert:
  - General purpose programming language: Java, C, C++
  - Smartphone programming: Android (including user applications design and deep understanding on Android framework and kernel)
  - Script programming: Python, Shell, MATLAB
  - Network programming: Wi-Fi chipset driver (including Broadcom 4k series, Atheros 6k 9k 10k series, Marvell 8k series)
  - Database programming: PHP, SQL
  - Cloud programming: Google App engine, Amazon S3 server
  - Operating Systems: Linux, Mac, Windows
- Intermediate:
  - Smartphone programming: iOS
  - Web sever programming: Apache
  - EDA: VHDL, Verilog, FPGA

EXTRACURRICULAR

Sept. 2012-Mar. 2013 **DARTMOUTH COLLEGE** Hanover, NH

IT supporter, *Berry Library*

- Created and edited web pages on Blackboard, an online course interfaces for students and professors, using HTML/CSS.
- Fixed software bugs, text errors, and dead-links on the college website.
- Answered questions for students and faculty about computer services at Dartmouth College.

Aug. 2008-Sept. 2008 **BEIJING WUKESONG OLYMPIC BASKETBALL HALL** Beijing, China

Site volunteer

- Volunteered each day during 2008 Beijing Olympics Games and 2008 Beijing Paralympics.
- Guided audience to their seats, especially for people from other countries.
- Organized an evening party for athletes and volunteers.