

# Chi Zhang



<http://dword1511.info/me>



@dword1511



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## RESEARCH INTERESTS

### Mobile Computing:

Energy Efficiency; Wireless Network; Cross-Layer Optimization; Mobile Interaction

### Ubiquitous Computing:

Internet of Things (IoT); Low-power and Ubiquitous Sensing; Ubiquitous Localization; Sensing Systems; Hardware Software Co-design for Sensing and Networking

## EDUCATION

### University of Wisconsin-Madison

*Ph.D.* Electrical and Computer Engineering

Sept. 2013 – Dec. 2017

*Minor:* Computer Science

*Dissertation:* Augmenting Mobile and Ubiquitous Interactions with Computational Light Sensing

*Advisor:* Xinyu Zhang

*M.S.* Electrical Engineering

Sept. 2013 – May. 2016

### University of California San Diego

*Visiting Graduate Student*

Sept. 2017 – Dec. 2017

### Huazhong University of Science and Technology

*B.E.* Optoelectronics Engineering

Sept. 2009 – Jul. 2013

## PUBLICATIONS

“\*\*” marks co-primary authors.

### Automating Visual Privacy Protection Using a Smart LED

Shilin Zhu\*, Chi Zhang\*, Xinyu Zhang

*ACM International Conference on Mobile Computing and Networking (MobiCom)*, 2017

*Acceptance ratio:* 18.8% (35 / 186)

- **Press coverage** by IEEE Spectrum, Digital Trends, CO.DESIGN, Yahoo, and other media in 7+ languages  
Also in *ACM Wireless of the Students, by the Students, for the Students (S<sup>3</sup>) Workshop*, 2017

### Pulsar: Towards Ubiquitous Visible Light Localization

Chi Zhang, Xinyu Zhang

*ACM International Conference on Mobile Computing and Networking (MobiCom)*, 2017

*Acceptance ratio:* 18.8% (35 / 186)

Also in *ACM Wireless of the Students, by the Students, for the Students (S<sup>3</sup>) Workshop*, 2017

### LiTell: Robust Indoor Localization Using Unmodified Light Fixtures

Chi Zhang, Xinyu Zhang

*ACM International Conference on Mobile Computing and Networking (MobiCom)*, 2016

*Acceptance ratio:* 14.2% (32 / 226)

- **Finalist** of WARF Innovation Awards, 6 out of 400+ invention disclosures in 2016 (**top 1.5%**)

### Towards a Visible Light Network Architecture for Continuous Communication and Localization

Jialiang Zhang, Chi Zhang, Xinyu Zhang, Suman Banerjee

*ACM Workshop on Visible Light Communication Systems (VLCS)*, 2016

**Extending Mobile Interaction Through Near-Field Visible Light Sensing**

Chi Zhang, Joshua Tabor, Jialiang Zhang, Xinyu Zhang

*ACM International Conference on Mobile Computing and Networking (MobiCom)*, 2015

Acceptance ratio: 18.4% (38 / 207)

**Energy Efficient WiFi Display**

Chi Zhang, Xinyu Zhang, Ranveer Chandra

*ACM International Conference on Mobile Systems, Applications, and Services (MobiSys)*, 2015

Acceptance ratio: 13.2% (29 / 219)

**Evaluation of Traffic Control in Virtual Environment**

Xiaojing Wang, Wei Ye, Haowei Wu, Linjie Ding, Chi Zhang

*International Symposium on Distributed Computing and Applications to Business, Engineering and Science (DCABES)*, 2012

## DEMOS

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**LiShield: Privacy Protection of Physical Environment Against Photographing**

Shilin Zhu\*, Chi Zhang\*, Xinyu Zhang

*ACM International Conference on Mobile Computing and Networking (MobiCom)*, 2017

• **Invited Demo** in *ACM Workshop on Visible Light Communication Systems (VLCS)*, 2017

Also in *ACM Wireless of the Students, by the Students, for the Students (S<sup>3</sup>) Workshop*, 2017

**Visible Light Localization Using Incumbent Light Fixtures**

Chi Zhang, Shipei Zhou, Xinyu Zhang

*ACM Conference on Embedded Network Sensor Systems (SenSys)*, 2016

**LiTell: Indoor Localization Using Unmodified Light Fixtures**

Chi Zhang, Xinyu Zhang

*ACM International Conference on Mobile Computing and Networking (MobiCom)*, 2016

## PATENTS

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**Visual Privacy Protection System**

Xinyu Zhang, Chi Zhang, Shilin Zhu

US Patent App 15/616386

**Navigation System Tracking High-Efficiency Indoor Lighting Fixtures**

Xinyu Zhang, Chi Zhang

US Patent App 15/379950

**Spatial Location Indoors Using Standard Fluorescent Fixtures**

Xinyu Zhang, Chi Zhang

US 2017/0346558; WO 2017/205020

**Location Aware Communication System Using Visible Light Transmission**

Xinyu Zhang, Suman Banerjee, Jialiang Zhang, Chi Zhang

US 9,712,234; US 2017/0187454

**Touch Surface for Mobile Devices Using Near Field Light Sensing**

Xinyu Zhang, Chi Zhang, Joshua Tabor, Jialiang Zhang

US 2017/0108994

## EXPERIENCE

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### University of Wisconsin-Madison

Madison, WI

*Research Assistant*

Sept. 2015 – present

Low-power Analog Signal Conditioning; Real-time, Energy-Efficient Signal Processing  
 Indoor Localization; Orientation Sensing; Heart Rate Monitoring; Sensor Fusion  
 RF Modulator; 802.11 MAC and PHY Implementation; Software Defined Radio  
 Portable, Mixed-signal and RF PCB Prototyping; Low-power IoT Platform Development  
 Microcontrollers Development; Reverse Engineering; Firmware Hack  
 High-speed, High-dynamic-range Photodiode Sensors; PD-based AoA Sensing  
 Aliased Sampling; Artifacts Removal; Ambient Interference Suppression  
 RAW Image and Video Processing; USB Interfacing; JNI Library

*Teaching Assistant*

Sept. 2015 – Dec. 2015

E C E 454: Mobile Computing Lab

*Project Assistant*

Sept. 2014 – Aug. 2015

Android Development; Wireless Display; Linux Kernel Driver; Energy and Optimization  
 Light Sensing; Channel Modeling; Ubiquitous Touch Input; Arduino; Hardware Prototyping  
 Kernel-space Networking; Motion Sensing; Sensor Interfacing; Embedded Development

## SERVICE

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### Reviewer:

IEEE Transaction on Mobile Computing (**TMC**)

IEEE/ACM International Symposium on Quality of Service 2017 (**IWQoS'17**)

### Reviewer (via Prof. Xinyu Zhang):

INFOCOM, JSAC, TMC, TWC, SECON, IWQoS, ICNP, HotWireless, VLCS, CoNEXT, MobiCom, MobiSys

## SKILLS

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C, Java, Python, PHP, Shell Script, MATLAB

Linux, Debian, OpenWRT/LEDE, Android, OpenCV, GNU Radio

Raspberry Pi, BeagleBone, Arduino, WARP, RTL-SDR

Device Tree, Kernel Driver, libusb, i2c-dev, IIO, JNI

MCU, AVR, ARM, Xtensa, STM32, ESP8266

Circuits, Analog, Digital, RF, DC-DC, PCB, Eagle, SPICE, Verilog, Reverse Engineering

Makefile, Markdown, L<sup>A</sup>T<sub>E</sub>X, HTML5, CSS, JSON, SVG, Git, Gnuplot

## REFERENCES

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**Xinyu Zhang**

*Associate Professor*, University of California San Diego  
xyzhang@ucsd.edu

**Yu Hen Hu**

*Professor*, University of Wisconsin-Madison  
hu@engr.wisc.edu

**Dinesh Bharadia**

*Assistant Professor*, University of California San Diego  
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**Ranveer Chandra**

*Principle Researcher*, Microsoft Research  
ranveer@microsoft.com

**Suman Banerjee**

*Professor*, University of Wisconsin-Madison  
suman@cs.wisc.edu

**Mohit Gupta**

*Assistant Professor*, University of Wisconsin-Madison  
mohitg@cs.wisc.edu