Talia Minyin Xu

CONTACT
INFORMATION

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EDUCATION

Delft University of Technology, Delft, the Netherlands
Doctor of Philosophy in Computer Science   Feb. 2020 - Feb. 2024 (Expected)
Thesis: Passive Visible Light Communication
Advisor: Marco Zúñiga

University of Toronto, Toronto, ON, Canada
Master of Applied Science in Computer Engineering   2016 - 2018
Thesis: Reconfigurable Antennas for Satellite Communication
Advisor: Sean Hum

Bachelor of Applied Science in Electrical and Computer Engineering   2010 - 2016

EXPERIENCE

Ph.D. Research   Feb. 2020 - Current
Delft University of Technology, Delft, The Netherlands
- My thesis is on enabling wireless optical communication with ambient light with reconfigurable optical surfaces.
- Designed and implemented systems to establish a point-to-point ambient light communication with different spatial optical modulators (liquid crystal shutters, digital micromirror devices) and optical receivers (photodiodes, solar cells).
- Proposed research project ideas for master students and supervised them to work on topics related to localization with visible light

Antenna and RF Engineer   Oct. 2018 - Oct. 2019
Reach Power, Oakland, CA, The U.S.A
- Lead the antenna design efforts for various industrial focused wireless charging applications, through the design of phased array antennas as the charging station and passive receiving antennas to maximize received power.
- Carried out end-to-end (from simulation to measurements) designs of RF circuits (rectifying circuits and phase shifters) at 5.8 GHz and 915 MHz for different power levels.
- Implemented a reliable and scalable communication link between transmitting and receiving stations on TI CC1350

M.A.Sc Research   Sep. 2016 - Oct. 2018
University of Toronto, Toronto, ON, Canada
- Design and verification of passive and electronically reconfigurable antennas with full-wave simulation tools such as ANSYS HFSS and near-field measurements in anechoic chamber using NSI near-field scanner.
- Designed a wide-band reconfigurable metasurface and extracted an accurate circuit model to analyze its working principle for fast implementation and scalability.
- Hands-on experience with design and layouts of multi-layer mixed RF-signal PCBs, vector network analyzer

Software Engineer Intern   May 2016 - Aug. 2016
Amazon, Toronto, ON, Canada
- Designed, implemented, and tested a package to evaluate and visualize performance of new employees.
- Deployed the package to auto-collect and process data from warehouses in the North America and Europe regions daily for performance evaluation of warehouse employees.

Software Engineer Intern   May 2015 - Aug. 2015
Arista Networks, Burnaby, BC, Canada

- Implemented a packet feature to decode incoming packets on an interface and allow users to better monitor traffic coming in and out on a switch
- Designed and wrote a model based product test to exhaust all possible configurations and test scenarios
- Assisted with product release and debugging issues

Student Researcher   May 2014 - Aug. 2014

University of Toronto, Toront, ON, Canada

- Explored Xilinx High Level Synthesis tool Vivado on Zedboard and Nexys4 board, developed tutorial and lab materials for fourth year undergraduate hardware course
- Used peripheral module to control a robot arm, created a base project and documentation for fourth year undergraduate computer engineering students
- Implemented a firewall application for Virtual Extended LAN using CAM in Verilog and C, compared their performance and co-authorized a paper to be submitted to FPGA conference

Hardware Acceleration Lab Intern   May 2013 - May 2014

IBM, Markham, ON, Canada

- Implemented, used and evaluated convolutional neural network for processing, training and testing images for object classification
- Implemented different face recognition algorithms on CPU such as PCA and Fisherface using C++ and accelerated them on GPU using cuda and achieved more then 10 times performance improvements on GPU
- Prototyped kernels for business analysis algorithms on GPU using cuda and evaluated its performance compared to multi-core CPU, gained 5X performance improvements
- Optimized TSM (written in C) by providing software optimizations such as utilizing platform-specific aseembly code, performing SIMD on its operations and unrolling loops to achieve over 30
- Modified kernel drivers for FPGA (written in C) and added kernel and user functions to enable Configuration via Protocol to allow reconfiguration of FPGA without rebooting the machine

| REFEREED JOURNAL PUBLICATIONS | Miguel Chávez Tapia, **Talia Xu** and Marco Zúñiga. SunBox: Screen-to-Camera Communication with Ambient Light. *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT'22)*, 2022 |

Elham Baladi, **Minyin Xu**, Nicolas Faria, Jeff Nicholls and Sean Victor Hum. Dual-Band Circularly Polarized Fully Reconfigurable Reflectarray Antenna for Satellite Applications in the Ku-Band. *IEEE Transactions on Antennas and Propagation (IEEE TAP'21)*, 2021

REFEREED CONFERENCE PUBLICATIONS

* represents students I mentored

Oxana Oosterlee*, **Talia Xu** and Marco Zúñiga. Inti: Indoor Tracking with Solar Cells. *The International Conference on Embedded Wireless Systems and Networks (EWSN'22)*, 2022 (acceptance rate: 30.4%)

Talia Xu, Miguel Chávez Tapia and Marco Zúñiga. Exploiting Digital Micro-Mirror Devices for Ambient Light Communication. *19th USENIX Symposium on Networked Systems Design and Implementation (NSDI'22)*, 2022 (acceptance rate: 19.7%)

MSc THESIS MENTORED	Japser Jonk, ongoing
	Jasper-Jan Lut, ongoing
	Jasper de Zoete, ongoing
	Lucan de Groot, DynamicVLBC. 2022
	Ricardo Ampudia, Visible light positioning for UAV. 2021
	Oxana Oosterlee, Indoor Multi-Target Tracking with Solar Cells. 2021

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<div>TEACHING EXPERIENCE</div>
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Embedded Systems Lab,   Teaching Assistant
CS4140, Delft University of Technology, 2021, 2022   *(Graduate Students)*
Monitored labs and marked exams covering embedded system designs for a drone control system.

Radio and Microwave Wireless Sysetms,   Teaching Assistant
ECE422, University of Toronto, 2016, 2017   *(4th Year Undergraduates)*
Developed lab materials and monitored labs covering antenna experiments

Computer Organization,   Teaching Assistant
CSC258, University of Toronto, 2015, 2016, 2017, 2018   *(2nd Year Undergraduates)*
Monitored labs and marked exams. Mentored students during 3-week design projects using Verilog to implement hardware designs.

Operating Systems,   Teaching Assistant
CSC369, University of Toronto, 2016, 2017, 2018   *(3rd Year Undergraduates)*
Presented tutorials, marked assignments, monitored online discussion forum and marked exams.

Computers in Linguistics,   Course Developer
LINB19, University of Toronto, 2017   *(Undergraduates)*
Developed lab and exam materials.

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