LINDA WANG

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EDUCATION

University of Waterloo *Sept 2018 - May 2020 (expected)*
Masters of Applied Science Waterloo, ON
Systems Design Engineering, focus in Artificial Intelligence
Advisor: Alexander Wong
Thesis: *Towards Human-Centered AI-Powered Assistants for the Visually Impaired*

University of Waterloo *Sept 2013 - Apr 2018*
Bachelor of Applied Science Waterloo, ON
Systems Design Engineering with Distinction, Co-operative Program

RESEARCH INTERESTS

Artificial Intelligence - Computer Vision, Deep Learning
I'm interested in combining different visual perception cues, such as object detection and depth estimation, to build a rich scene understanding. My goal is to contribute to the advancement of AI by applying my research to areas such as AI for accessibility and autonomous driving.

SKILLS

Languages	Python, C++, Java, Matlab, C#, SQL, Swift
Tools	Tensorflow, PyTorch, OpenCV, Git, Mercurial, Unix, LaTeX

PUBLICATIONS

Dulhanty, C., Wang, L., Cheng, M., Gunraj, H., Khalvati, F., Haider, M.A., Wong, A. **Radiomics Driven Diffusion Weighted Imaging Sensing Strategies for Zone-Level Prostate Cancer Sensing**. Sensors, 2020.

Wang,L., Patnik,A., Wong,E., Wong,J., Wong,A. **OLIV: An Artificial Intelligence-Powered Assistant for Object Localization for Impaired Vision**. Conference on Vision and Imaging Systems (CVIS), 2018.

Boroomand,A., Sahfiee,M.J., **Wang,L.**, Kuang,E., Kazemzadeh,F., Wong,A. **Compensated Lens-Free Light Field Microscopy**. International Conference on Inverse Problems in Engineering (ICIPE), 2017.

PRESENTATIONS

Wang, L., Dulhanty, C., Chung, A., Khalvati, F., Haider, M., Wong, A. **Zone-DR: Discovery Radiomics via Zone-level Deep Radiomic Sequencer Discovery for Zone-based Prostate Cancer Grading using Diffusion Weighted Imaging**. Conference on Neural Information Processing Systems Workshops (NeurIPS), 2019. [Poster]

Wang, L., Wong, A. **Implications of Computer Vision Driven Assistive Technologies Towards Individuals with Visual Impairment**. The IEEE Conference on Computer Vision and Pattern Recognition Workshops (CVPR), 2019. [Oral spotlight and poster]

Wang, L., Wong, A. **Enabling Computer Vision Driven Assistive Devices for the Visually Impaired via Micro-architecture Design Exploration**. The IEEE Conference on Computer Vision and Pattern Recognition Workshops (CVPR), 2019. [Poster]

RESEARCH EXPERIENCE

Vision and Image Processing Lab, University of Waterloo Sept 2018 - Present
Graduate Research Assistant *Waterloo, ON*

- Developing an AI-driven assistant system to help those with visual impairment by combining different visual perceptions (object detection and depth) to produce a rich scene understanding, while maintaining a balance between speed, accuracy and size.
- Conducting research in prostate cancer detection using different modalities of diffusion weighted imaging using discovery radiomics.
- Creating a novel dataset for emotion detection to help children with autism overcome barriers when interacting with society by understanding the elicited emotion of those around.
- Developing a multi-spectral light-field lens-free nanoscopy microscope.

Vision and Image Processing Lab, University of Waterloo Sept 2016 - Dec 2017
Undergraduate Research Assistant *Waterloo, ON*

- Optimizing existing object detection models by migrating them from Caffe to Caffe2, and employing these models to run in real-time on mobile devices.
- Designed and developed a real-time reconstruction visualization platform backed by image quality enhancement algorithms for the light-field encodings captured using a lens-free nanoscopy system and dispersed Fourier Transform spectrometer.
- Extended the capabilities of the light-field lens-free nanoscopy system to capture information at different wavelengths and concatenate these captures to produce a coloured image.

WORK EXPERIENCE

Darwin AI Jan 2020 - Present
Research Intern *Waterloo, CA*

- Experimenting with efficient Transformer and monocular depth estimation models
- A leading member on the COVID-Net open source initiative

Lyft, Autonomous Team May - Aug 2019
Software Engineer *Palo Alto, USA*

- Worked on monocular depth estimation for autonomous vehicles
- Implemented the pipeline from data preprocessing to training to evaluation for depth estimation
- Trained and evaluated both supervised and unsupervised monocular depth estimation models

Facebook, Computational Photography Group May - Aug 2017
Software Engineer *Seattle, USA*

- Developed 3D multi-facial deformations using OpenGL for the Augmented Reality Studio
- Experimented with frame buffers in OpenGL to handle interferences when there are multiple faces

Bluebank Communication Technology Jan - Apr 2016
Hardware Engineer *Chongqing, China*

- Designed PCB layouts and component footprints for mobile device components
- Validated device systems using specialized equipment to measure relevant signals, current flow and voltages of device components, and to calibrate radio frequencies

Molex May - Aug 2015
Embedded System Developer *Waterloo, ON*

- Designed a test system of multiple computers in a network and new automated MAC address retrieval

Molex Sept - Dec 2014
Junior Developer *Waterloo, ON*

· Implemented an image recognition system to detect LED colours in a noisy environment
· Leveraged UDP to automatically download files at various test stages to improve speed and throughput

Independent Electricity System Operator Jan - Apr 2014
Developmental Intern *Mississauga, ON*

· Wrote an automated synchronization script that sync files from primary server to backup server
· Developed a portal to publish reports to market participants and the general public

TEACHING EXPERIENCE

MTE140 and BME122: Data Structures and Algorithms Jan - Apr 2020
Teaching Assistant *Waterloo, ON*

· Ran lab sessions, office hours and marked assignments and exams

SYDE121: Digital Computation Sept 2019 - Dec 2019
Lead Teaching Assistant *Waterloo, ON*

· Taught and reviewed core course content during tutorial sessions
· Ran lab sessions and office hours

MTE140 and BME122: Data Structures and Algorithms Jan - Apr 2019
Teaching Assistant *Waterloo, ON*

· Taught a class on algorithmic analysis, big-O notation
· Ran lab sessions and helped students understand core concepts to complete labs

PROJECTS

Survey of Nonlinear Kalman Filters
Github: https://github.com/lindawangg/Survey-Nonlinear-Filters
Analyzed and compared performance of nonlinear filters when applied to nonlinear and non-Gaussian problems.

Computer Vision System to Aid the Visually Impaired
Github: https://github.com/edrickwong/w3p
Worked in a team of four to build an assistive kitchen system for the visually impaired using computer vision. Won Systems Design Award for Best Overall Project.

Selective Attention Model
Github: https://github.com/lindawangg/Visuospatial-Attention
Utilized the Neural Engineering Framework to simulate selective attention between the primary visual cortex and middle temporal area.

Classifying Heartbeats
Github: https://github.com/lindawangg/Classifying-Heartbeats
Extracted features from audio heart sounds to classify into five classes using various machine learning methods.

Capsule Networks and Face Recognition
Github: https://github.com/krishnr/CapsNet4Faces
Applied Capsule Networks to face recognition task on Labeled Faces in the Wild dataset. Achieved 93.7% accuracy on test set.

HONOURS AND AWARDS

Faculty of Engineering Achievement Award	2019
Ontario Graduate Scholarship	2018
President's Graduate Scholarship	2018
Systems Design Award for Best Overall Project	2018
President's International Experience Award	2017
President's Research Award	2017
NSERC Undergraduate Student Research Award	2017
President's Athlete Academic Honour Roll	2013-2017
University of Waterloo President's Scholarship of Distinction	2013

INTERESTS

Varsity Swim Team, University of Waterloo, 2013 - 2017
Computer vision and deep learning
Photography
Traveling, exploring and hiking