

# DAY 1 – Tuesday, December 6<sup>th</sup>

E7 2357 + 2317 / ZOOM

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<b>Morning</b>	<b>Meeting ID: 995 5910 6928. Passcode: 991326</b>
<b>8:40 am - 9:00 am</b>	<i>Opening Remarks:</i> <i>Alexander Wong</i> (Hybrid: E7 Hub & Lecture Hall)
<b>9:00 am - 10:00 am</b>	<i>Academia Keynote1:</i> Dr. Matthew Lungren, Chief Medical Information Officer, Nuance Communications (Online)
<b>10:00 am - 11:00 am</b>	<i>Academia Keynote2:</i> Dr. Zhou Zhang, Assistant Professor, University of Wisconsin-Madison (Online)
<b>11:10 am - 12:10 pm</b>	<i>Oral Presentations 1</i> (Hybrid: E7 Hub & Lecture Hall)
<b>12:10 pm - 1:00 pm</b>	<i>Lunch Break</i>
<b>Afternoon</b>	<b>Meeting ID: 945 9208 6999. Passcode: 576692</b>
<b>1:00 pm - 2:00 pm</b>	<i>Academia Keynote3:</i> Dr. Shijia Pan, Assistant Professor, University of California Merced (Online)
<b>2:10 pm - 3:10 pm</b>	<i>Oral Presentations 2</i> (Hybrid: E7 Hub & Lecture Hall)
<b>3:20 pm – 4:20 pm</b>	<i>Oral Presentations 3</i> (Hybrid: E7 Hub & Lecture Hall)

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# DAY 1

**Please use the zoom links below to join virtually.**

## **Zoom link before Lunch:**

Topic: CVIS 2022 -- Morning Dec6

Time: Dec 6, 2022 08:30 AM Eastern Time (US and Canada)

Join Zoom Meeting

<https://uwaterloo.zoom.us/j/99559106928?pwd=WGZTbzQ3RnlQMnlGYnh5ZG5FM3NqZz09>

Meeting ID: 995 5910 6928. Passcode: 991326

## **Zoom link after Lunch:**

Topic: CVIS 2022 -- Afternoon Dec6

Time: Dec 6, 2022 12:30 PM Eastern Time (US and Canada)

Join Zoom Meeting

<https://uwaterloo.zoom.us/j/94592086999?pwd=RzNmOE1oMzIzcDNQWktzQWpnQ0dXZz09>

Meeting ID: 945 9208 6999. Passcode: 576692

# DAY 1

***Keynote talk 1*** 9:00 am - 10:00 am

**Title:** Post deployment considerations for AI in Radiology

**Speaker:** Dr. Matthew Lungren

Chief Medical Information Officer, Nuance Communications

***Keynote talk 2*** 10:00 am - 11:00 am

**Title:** Combine remote sensing and machine learning in support of digital agriculture

**Speaker:** Dr. Zhou Zhang

Assistant Professor, University of Wisconsin-Madison, USA

***Keynote talk 3*** 1:00 pm - 2:00 pm

**Title:** Physical Knowledge-Informed Learning Adaptation for Internet-of-Things

**Speaker:** Dr. Shijia Pan

Assistant Professor, University of California Merced

# DAY 1

## ***Oral Presentations 1 -- 11:10 am - 12:10 pm***

Plankton-FL: Exploration of Federated Learning for Privacy-Preserving Training of Deep Neural Networks for Phytoplankton Classification

***Zhang, Daniel\****; ***Voleti, Vikram***; ***Deglint, Jason L***; ***Wong, Alexander***

Hierarchical sea ice classification with dual-polarized SAR imagery

***Chen, Xinwei\****; ***Scott, K Andrea***; ***Jiang, Mingzhe***; ***Xu, Linlin***; ***Clausi, David A***

PCBDet: An Efficient Deep Neural Network Object Detection Architecture for Automatic PCB Component Detection on the Edge

***Li, Brian\****; ***Palayew, Steven***; ***Li, Francis***; ***Abbasi, Saad***; ***Nair, Saejith***; ***Wong, Alexander***

Sea Ice Mapping from Compact Polarimetric SAR Imagery Using Contextual Information and Learned Features

***Taleghanidoozdoozan, Saeid\****; ***Xu, Linlin***; ***Clausi, David A***

## ***Oral Presentations 2 -- 2:10 pm - 3:10 pm***

COVID-Net UV: An End-to-End Spatio-Temporal Deep Neural Network Architecture for Automated Diagnosis of COVID-19 Infection from Ultrasound Videos

***Azimi, Hilda\****; ***Ebadi, Ashkan***; ***Song, Jessy***; ***XI, PENGCHENG***; ***Tremblay, Stéphane***; ***Wong, Alexander***

COVID-Net Assistant: A Deep Learning-Driven Virtual Assistant for Early COVID-19 Recommendation

***Shi, Pengyuan\****; ***Wang, Yuetong***; ***Abbasi, Saad***; ***Wong, Alexander***

Compassionate AI in Clinical Care: Feasibility Assessment of a Rules-Based Algorithm to Support a Nurse-Led Model of Care for Prostate Cancer Survivorship

***Janes, Elizabeth L\****; ***Pfisterer, Kaylen***; ***Pham, Quynh***

A Novel Computational Thermal-Visual Imaging System for Automatic Cornea Temperature Measurement and Tracking

***Zare Bidaki, Ehsan\****

## ***Oral Presentations 3 -- 3:20 pm – 4:20 pm***

NRC-GAMMA: A Large Novel Open-Access Gas Meter Image Dataset

***Ebadi, Ashkan\****; ***Paul, Patrick***; ***Auer, Sofia***; ***Tremblay, Stéphane***

Causal Discovery from Sparse Time-Series Data Using Echo State Network

***Chen, Haonan\****; ***Chang, Bo Yuan***; ***Naiel, Mohamed***; ***Zeleg, John***

From Intention to Action: The Fair AI Toolbox

***Meyer, Robbie\****; ***Wong, Alexander***

Foodverse: A Dataset of 3D Food Models for Nutritional Intake Estimation

***Tai, Chi-en A\****; ***Chen, Yuhao***; ***Keller, Matthew***; ***Kerrigan, Mattie***; ***Nair, Saejith***; ***XI, PENGCHENG***; ***Wong, Alexander***

# DAY 2 – Wednesday, December 7<sup>th</sup>

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**9:30 am - 10:00 am**    *Registration & Coffee*  
(DC 1301)

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**10:00 am - 10:15 am**    *Opening Remarks and Welcome*  
(DC 1301)

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**10:20 am - 11:30 am**    *Poster Session & Coffee*  
(DC 1301)

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**11:30 am - 12:50 pm**    *Lunch*  
(DC 1301)

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**1:00 pm - 2:00 pm**    *Industrial Keynote:*  
Gavriel State, NVIDIA  
(DC 1302)

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**2:00 pm - 2:20 pm**    *Industrial presentation*  
ABR  
(DC 1302)

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**2:20 pm – 3:30 pm**    *Industrial Showcase*  
(DC 1301)

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**3:40 pm - 4:25 pm**    *Awards Ceremony & Closing Remarks*  
(DC 1302)

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# DAY 2 – Poster Session 10:30 am - 11:30 am, DC1301

1. In-Home Activity Monitoring Using Radars  
*Abedi, Hajar\**; *Ansariyan, Ahmad*; *Morita, Plinio*; *Wong, Alexander*; *Boger, Jennifer*; *Shaker, George*
2. A Machine Learning Approach to Spatiotemporal Emission Modelling  
*Zheng, Kelly L\**; *Fraser, Roydon*; *Thé, Jesse*
3. HybridCom: A Clone-Aware Hybrid Neural Translation and Information Retrieval Framework for Source Code Summarization  
*Liu, Xiaotian\**
4. Bayesian Subpixel Mapping Neural Network for Hyperspectral images  
*Fang, Yuan\**; *Xu, Linlin*; *Wang, Yuxian*; *Clausi, David A*
5. Machine Learning Challenges of Biological Factors in Insect Image Data  
*Pellegrino, Nicholas\**; *Gharaee, Zahra*; *Fieguth, Paul*
6. Challenges in detection of rare close-call events from vehicle-traffic videos  
*Koh, Auguste L. W.\**; *Park, Jinman*; *Fieguth, Paul*
7. Improved Hockey Rink Localization via Augmentation and Temporal Frame Analysis  
*Shang, Jia Cheng\**; *Fani, Mehrnaz*; *Clausi, David A*; *Shafiee, Mohammad Javad*
8. Investigation of Unsupervised Auto-segmentation for Weak Phytoplankton Annotations  
*Deglint, Jason L\**
9. A Trustworthy Framework for Medical Image Analysis with Deep Learning  
*Ma, Kai\**; *He, Siyuan*; *XI, PENGCHENG*; *Ebadi, Ashkan*; *Tremblay, Stéphane*; *Wong, Alexander*
10. Vision Systems For Identifying Interlocutor Behaviour And Augmenting Human-Robot Interaction  
*Barot, Pranav\**; *MacDonald, Ewen*; *Mombaur, Katja*
11. Automated search for optimal convolutional neural network factorization  
*Mokadem, Frank\**; *Wong, Alexander*
12. Evaluating The Affine Grassmanian for First-Pass Histogram Place Recognition  
*Bradley, Matthew\**; *Zelek, John*
13. Investigating Use of Keypoints for Object Pose Recognition  
*Zeng, E. Zhixuan\**; *Chen, Yuhao*; *Wong, Alexander*
14. Development of a Vertebral Field-of-View Detector for Spine MRI Registration  
*Chu, Jonathan\**
15. Beluga whale detection from sliced aerial remote sensing images using object detection pipelines  
*Patel, Muhammed*; *Chen, Xinwei\**; *Brubacher, Neil*; *Xu, Linlin*; *Clausi, David A*
16. Continuous Optimization for Medical Image Registration of Large Displacement Datasets  
*Vujovic, Teodora\**
17. Foodverse: A Dataset of 3D Food Models for Nutritional Intake Estimation  
*Tai, Chi-en A\**; *Chen, Yuhao*; *Keller, Matthew*; *Kerrigan, Mattie*; *Nair, Sreejith*; *XI, PENGCHENG*; *Wong, Alexander*
18. COVID-Net Assistant: A Deep Learning-Driven Virtual Assistant for Early COVID-19 Recommendation  
*Pengyuan Shi\**; *Yuetong Wang*; *Saad Abbasi*; *Alexander Wong*

# DAY 2

## INDUSTRIAL KEYNOTE

1:00 pm – 2:00 pm  
DC 1302

**Speaker:**

Gavriel State,  
Senior Director of Simulation  
and AI, NVIDIA

**Title:**

Synthetic Data for Computer  
Vision and Agile Robotic  
Manipulation

## INDUSTRIAL PRESENTATION

2:00 pm – 2:20 pm  
DC 1302

**Speaker:**

Dr. Eric Hunsberger,  
Senior Research Scientist,  
Applied Brain Research (ABR)

**Title:**

New Algorithm and Hardware for  
Optimal Time Series Processing

## INDUSTRIAL INNOVATION SHOWCASE

2:20 pm – 3:30 pm  
DC 1301

ABR

Waterloo AI

Avidbots

Chirp

Miovision

SPORTLOGiQ