Dr. Mennatullah Siam

Curriculum Vitae

Mail	mennatullah.siam@ontariotechu.ca
Homepage	https://msiam.github.io/homepage/
Research	Computer Vision, Deep Learning, Few-shot Learning, Video Segmentation, Video Understanding.
Status	Canadian Citizen
Title	PhD, PEng.

ACADEMIC POSITIONS

Assistant Professor 7/2023

Ontario Tech University, Engineering and Applied Sciences, Full time.

Image and Video Understanding (IVU) Lab

Affiliate Professor 3/2024

University of British Columbia, Computer Science.

Assistant Professor-Term 2/22-7/22

Nile University, Information Technology and Computer Science, Part time.

Teaching Computer Vision CIT-690 Course

EDUCATION

PhD in Computing Science 2015-2021

University of Alberta

Under supervision of Professor Martin Jagersand.

Thesis Title: learning video object segmentation from limited labeled data.

Thesis Nominated for Department Award.

MSc. in Communication and Information Technology 2010-2013

Nile University

Under supervision of Dr. Mohamed ElHelw.

Thesis Title: Robust Target Detection and Tracking.

BSc. in Computer Science 2006-2010

Ainshams University

Graduation Project: Movable Interactive Display using Wii-Mote.

Score: 86.2%, Grade: Excellent with Honour.

PUBLICATIONS

[1] Mennatullah Siam, "Learning video object segmentation from limited labelled data," *PhD thesis, University of Alberta*, 2021.

[2] Rayat Mir Hossain, Mennatullah Siam, Leonid Sigal, and Jim Little, "Visual prompting for generalized few-shot segmentation: A multi-scale approach," in *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition*, 2024.

[3] Mai Gamal, Mohamed Rashad, Eman Ehab, Seif Eldawlatly, and Mennatullah Siam, "System identification of neural systems: Going beyond images to modelling dynamics," *arXiv preprint arXiv:2402.12519*, 2024.

[4] Rezaul Karim, He Zhao, Richard P. Wildes, and Mennatullah Siam, "MED-VT: Multiscale encoder-decoder video transformer with application to object segmentation," in *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition*, 2023.

[5] Raghav Goyal, Wan-Cyuan Fan, Mennatullah Siam, and Leonid Sigal, "M3t: Multi-scale memory matching for video object segmentation and tracking," *arXiv preprint arXiv:2312.08514*, 2023.

[6] Rezaul Karim, He Zhao, Richard P. Wildes, and Mennatullah Siam, "A unified multiscale encoder-decoder transformer for video segmentation," in *IEEE Transactions on Pattern Analysis and Machine Intelligence* ***(under review)***, 2024.

[7] Matthew Kowal, Mennatullah Siam, Md Amirul Islam, Neil D.B. Bruce, Richard P. Wildes, and Konstantinos G. Derpanis, "A deeper dive into what deep spatiotemporal networks encode: Quantifying static vs. dynamic information," in *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition*, 2022, pp. 13999–14009.

[8] Mennatullah Siam*, Naren Doraiswamy*, Boris N. Oreshkin*, Hengshuai Yao, and Martin Jägersand (* equally contributing), "Weakly supervised few-shot object segmentation using co-attention with visual and semantic embeddings," in *Proceedings of the Twenty-Ninth International Joint Conference on Artificial Intelligence*, 2020, pp. 860–867.

[9] Mennatullah Siam, Boris N. Oreshkin, and Martin Jagersand, "AMP: Adaptive masked proxies for few-shot segmentation," in *Proceedings of the IEEE International Conference on Computer Vision*, 2019, pp. 5249–5258.

[10] Mennatullah Siam, Chen Jiang, Steven Lu, Laura Petrich, Mahmoud Gamal, Mohamed Elhoseiny, and Martin Jagersand, "Video object segmentation using teacher-student adaptation in a human robot interaction (HRI) setting," in *Proceedings of the International Conference on Robotics and Automation*, 2019, pp. 50–56.

[11] Masood Dehghan*, Zichen Zhang*, Mennatullah Siam*, Jun Jin, Laura Petrich, and Martin Jagersand (* equally contributing), "Online object and task learning via human robot interaction," in *Proceedings of the International Conference on Robotics and Automation*, 2019, pp. 2132–2138.

[12] Mennatullah Siam, Sara Elkerdawy, Mostafa Gamal, Moemen Abdel-Razek, Martin Jagersand, and Hong Zhang, "Real-time segmentation with appearance, motion and geometry," in *Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems*, 2018, pp. 5793–5800.

[13] Mennatullah Siam*, Mostafa Gamal*, Moemen Abdel-Razek*, Martin Jagersand, and Senthil Yogamani (* equally contributing), "RTSeg: Real-time semantic segmentation comparative study," *Proceedings of the IEEE International Conference on Image Processing*, 2018.

[14] Mennatullah Siam, Heba Mahgoub, Mohamed Zahran, Senthil Yogamani, Martin Jagersand, and Ahmad El-Sallab, "MODNet: Moving object detection network

with motion and appearance for autonomous driving," *Proceedings of the IEEE International Conference on Intelligent Transportation Systems*, 2018.

[15] Mennatullah Siam, Sara Elkerdawy, Martin Jagersand, and Senthil Yogamani, "Deep semantic segmentation for automated driving: Taxonomy, roadmap and challenges," in *Proceedings of the IEEE International Conference on Intelligent Transportation Systems*, 2017, pp. 1–8.

[16] Mennatullah Siam, Konstantinos G. Derpanis, and Richard P. Wildes, "Multiscale memory comparator transformer for few-shot video segmentation," in *arXiv preprint arXiv:2307.07812*, 2023.

[17] Mennatullah Siam, Konstantinos G Derpanis, and Richard P Wildes, "Temporal transductive inference for few-shot video object segmentation," *arXiv preprint arXiv:2203.14308*, 2022.

[18] Matthew Kowal, Mennatullah Siam, Md Amirul Islam, Neil D.B. Bruce, Richard P. Wildes, and Konstantinos G. Derpanis, "Quantifying and learning static vs. dynamic information in deep spatiotemporal networks," *IEEE Transactions on Pattern Analysis and Machine Intelligence* ***(under review)***, 2022.

[19] Hesham Ali, Idriss Tondji, and Mennatullah Siam, "Two-stage joint transductive and inductive learning for nuclei segmentation," *Machine Learning for Health Symposium, Findings Track (Non Archival)*, 2023.

[20] Abdul-Hakeem Omotayo, Mai Gamal, Eman Ehab, Gbetondji Dovonon, Zainab Akinjobi, Ismaila Lukman, Houcemeddine Turki, Mahmod Abdien, Idriss Tondji, Abigail Oppong, Yvan Pimi, Karim Gamal, and Mennatullah Siam, "Towards a better understanding of the computer vision research community in africa," in *Equity and Access in Algorithms, Mechanisms, and Optimization*, 2023.

[21] Abdul-Hakeem Omotayo, Ashery Mbilinyi, Lukman Ismaila, Houcemeddine Turki, Mahmoud Abdien, Karim Gamal, Idriss Tondji, Yvan Pimi, Naome A Etori, Marwa M Matar, others, and Mennatullah S, "A survey on african computer vision datasets, topics and researchers," *Journal of AI Research* ***(acceptance notification)***, 2024.

[22] Mennatullah Siam, Konstantinos G. Derpanis, and Richard P. Wildes, "Temporal transductive inference for few-shot video object segmentation," in *Machine Learning for Autonomous Driving Workshop in Neurips*, 2021.

[23] Mennatullah Siam, Alex Kendall, and Martin Jagersand, "Video class agnostic segmentation benchmark for autonomous driving," in *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops*, June 2021, pp. 2825–2834.

[24] Mennatullah Siam, Boris Oreshkin, and Martin Jagersand, "Adaptive masked weight imprinting for few-shot segmentation," *Learning from Limited Labelled Data ICLR Workshop*, 2019.

[25] Mennatullah Siam, Heba Mahgoub, Mohamed Zahran, Senthil Yogamani, Martin Jagersand, and Ahmad El-Sallab, "Motion and appearance based multi-task learning network for autonomous driving," *Machine Learning for Intelligent Transportation Neurips Workshops*, 2017.

[26] Eslam Mohamed, Mahmoud Ewaisha, Mennatullah Siam, Hazem Rashed, Senthil Kumar Yogamani, Waleed Hamdy, Mohamed El-Dakdouky, and Ahmad El Sallab, "Monocular instance motion segmentation for autonomous driving: Kitti instancemotseg dataset and multi-task baseline," in *Proceedings of the IEEE Intelligent Vehicles Symposium*, 2021, pp. 114–121.

[27] Sepehr Valipour, Mennatullah Siam, Martin Jagersand, and Nilanjan Ray, "Recurrent fully convolutional networks for video segmentation," in *Proceedings of the IEEE Winter Conference on Applications of Computer Vision*, 2017.

[28] Abhineet Singh, Mennatullah Siam, and Martin Jagersand, "Unifying registration based tracking: A case study with structural similarity," in *Proceedings of the IEEE Winter Conference on Applications of Computer Vision*, 2017.

[29] Bjarne Großmann, Mennatullah Siam, and Volker Krüger, "Comparative evaluation of 3d pose estimation of industrial objects in rgb pointclouds," in *Proceedings of the International Conference on Computer Vision Systems*, 2015, pp. 329–342.

[30] Mennatullah Siam and Mohammed Elhelw, "Enhanced target tracking in uav imagery with pn learning and structural constraints," in *Proceedings of the IEEE International Conference on Computer Vision Workshops*, 2013, pp. 586–593.

[31] Menna Siam, Ramy ElSayed, and Mohamed ElHelw, "On-board multiple target detection and tracking on camera-equipped aerial vehicles," in *Proceedings of the IEEE International Conference on Robotics and Biomimetics*, 2012, pp. 2399–2405.

PATENTS

- Mennatullah Siam, Senthil Yogamani, Ahmad ElSallab, and Heba Mahgoub. "Motion and Appearance Based Multi-Task Learning of Motion Segmentation and Vehicle Detection", `https://worldwide.espacenet.com/publicationDetails/biblio?CC=DE&NR=102018114229&KC=&FT=E&locale=en_EP#`. (pending)

RESEARCH GRANTS

Total Funds: $250,714 (CAD)

- NSERC Discovery Grant. $120,000 (CAD)
- NSERC Discovery Grant Launch Supplements. $12,500 (CAD)
- NSERC Alliance International. $25,000 (CAD)
- Digital Research Alliance of Canada, Resources for Research Group. $33,214 (CAD)
- Startup Funds, Ontario Tech University. $60,000 (CAD)

SUPERVISION

PhD Students

- Narges Fatemi, Ontario Tech University (Supervision, start Fall'24)

MSc Students

- Yousef Hesham, Nile University (Co-supervision, start Summer'23)
- AlAmir Hassan, Nile University (Co-supervision, start Summer'24)

Interns

- Mai Gamal, German University in Cairo, Egypt (PhD Student) (Summer'23, Summer'24)

AWARDS

- KUKA Innovation Award Finalist team. 2018.

INVITED TALKS

- (Keynote) "Learning Scene and Video Understanding with Limited Labelled Data". Black in AI workshop, co-located with Neurips, 2022.
- "Image and Video Class Agnostic Segmentation". Huawei, Canada, 2021.
- "Image and Video Class Agnostic Segmentation". York University, Canada, 2021.
- "On the Intersection of Few-shot and Video Object Segmentation." Doctoral Consortium, CVPR. Online, 2021.
- "Few-shot Learning Tutorial." Samsung AI, Canada, 2022.

TEACHING EXPERIENCE

Instructor SOFE4620U Winter 2024
Ontario Tech University
Machine Learning and Data Mining.

Instructor SOFE2715U Winter 2024
Ontario Tech University
Data Structures.

Instructor ELEE2110 Fall 2023
Ontario Tech University
Discrete Mathematics for Engineers.

Instructor CIT 690 Spring 2022
Nile University
Computer Vision for Master students in ITCS School, Course Material Preparation, Instruction, and guiding the TA.

Co-Instructor MM 805 Winter 2021
University of Alberta
Computer Vision and 3DTV for Master students in Multimedia Program, Course Material Preparation and Instruction

ACADEMIC SERVICE

- Organizer of African Computer Vision Summer School, Nairobi, Kenya [1].
- Organizer of 3^{rd} Workshop on Learning with Limited Labelled Data for Image and Video Understanding (L3D-IVU) in CVPR 2024 [2].
- Organizer of 2^{nd} Workshop on Learning with Limited Labelled Data for Image and Video Understanding (L3D-IVU) in CVPR 2023 [3].
- Organizer of Learning with Limited Labelled Data for Image and Video Understanding (L3D-IVU) Workshop in CVPR 2022, [4].
- Technical committee member in Medical Image Learning with Limited and Noisy Data (MILLand) Workshop in MICCAI 2022, 2023 [5].
- Organizer CV4Africa workshop, Deep Learning Indaba, Accra, Ghana, 2023.
- Organizer and mentor in Black in AI social, CVPR, Vancouver, Canada, 2023.
- Guest Editor of special issue in Remote Sensing Journal on Autonomous Driving [6], 2022.
- Outstanding Reviewer in ICCV 2023 [7].
- Reviewer in ICRA, IROS, ECCV2020, WACV2020, CVPR 2021, ICCV 2021, WACV 2022, CVPR 2022, CVPR 2023, ICCV 2023.
- Program Committee Member in Machine Learning for Autonomous Driving Workshop - Neurips 2020, 2021.
- Reviewer in IJCV, TPAMI, Pattern Recognition Letters, IEEE Intelligent Systems, IEEE Transactions on Robotics.
- Area chair in IEEE CVF Winter Conference on Applications of Computer Vision (WACV), 2024, 2025.

RESEARCH AND INDUSTRIAL EXPERIENCE

Postdoctoral Fellow 7/21-7/23
York University, Lassonde School of Engineering, Full time.
CVIL York Lab. Supervised by Professor Richard Wildes

Postdoc Researcher 3/22-2/23
Vector Institute, Full time.

Research Assistant 2015-2021
University of Alberta, CS Dept, Full time.
Computer Vision and Robotics Lab.

Machine Learning Engineer Intern 6-12/2020

[1] https://sites.google.com/view/acvss/
[2] https://sites.google.com/view/l3divu2024
[3] https://sites.google.com/view/l3d-ivu-2023
[4] https://sites.google.com/view/l3d-ivu/
[5] https://zghada90.wixsite.com/milland/committee
[6] https://www.mdpi.com/journal/remotesensing/special_issues/75B73YS791
[7] https://iccv2023.thecvf.com/outstanding.reviewers-118.php

Wayve Ltd, London, UK.
Supervised by Corina Gurau

Research Intern 8/19-4/20
Huawei Research, Edmonton, Canada.
Supervised by Henghsuai Yao

Software Engineering Intern 6-9/2018
Autonomous Driving Team, Nvidia Corporation, Santa Clara, US.
Supervised by John Zedlewski

Software Engineering Intern 5-7/2017
Valeo Vision Systems, Ireland and Deep Learning Research Team in Egypt.
Supervised by Senthil Yogamani

Research Assistant 2013-2014
Nile University, Full time
Ubiquitous Computing and Vision Lab.

Software Engineering Intern 2012-2013
Sony Stuttgart Technology Center, Germany
Supervised by Franck Giron

VOLUNTEERING EXPERIENCE

Super Volunteer 2021, 2022
WiML Neurips 2021, 2022
Volunteering in helping out workshop organizers in different tasks.

Mentor 2019-2020
Black in AI
Helped as a mentor in the mentoring program within BAI to guide a student in his application towards graduate school.

Co-Founder 2022
Ro'ya CV4Africa Initiative
Volunteered to start a computer vision for Africa community as part of the Deep Learning Indaba. [8]

[8] https://ro-ya-cv4africa.github.io/homepage/