

# Ramy Mounir

PHD STUDENT · CSE

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## Summary

Fifth-year PhD candidate in the AI+X research group at the University of South Florida (USF) under the supervision of Dr. Sudeep Sarkar. Before that, I received my Bachelor's and Master's degrees in mechanical engineering while working on robotics and assistive technologies.

**Research Interests:** Computer Vision, Perception, Hierarchical Representation Learning, and Cognitive Psychology.

## Education

### University of South Florida

PhD, Computer Science and Engineering

Tampa, FL

Expected 2024

- Advisor: Dr. Sudeep Sarkar
- Research: Cognitive models, Self-supervised Representation Learning, Streaming datasets
- GPA: 4.0

### University of South Florida

M.SC, Mechanical Engineering

Tampa, FL

2018

- Advisor: Dr. Redwan Alqasemi
- Co-Advisor: Dr. Rajiv Dubey
- Research: Assistive technology, autonomous navigation, Brain computer interface
- GPA: 4.0

### University of South Florida

B.SC, Mechanical Engineering

Tampa, FL

2015

- Dean's list - All semesters
- Summa Cum Laude
- GPA: 3.96

## Book Chapters

**Self-supervised Event Segmentation**, Ramy Mounir, Sathyanarayanan N. Aakur and Sudeep Sarkar. Advanced Methods and Deep Learning in Computer Vision (Ch.12), *Elsevier 2021*, ISBN: 9780128221099 [Chapter]

## Publications

**STREAMER: Streaming Representation Learning and Event Segmentation in a Hierarchical Manner**, Ramy Mounir, Sujal Vijayaraghavan and Sudeep Sarkar. (*NeurIPS'23*) [paper] [website] [code / docs]

**Long-term Monitoring of Bird Flocks in the Wild**, Kshitiz, Sonu Shreshtha, Ramy Mounir, Mayank Vatsa, Richa Singh, Saket Anand, Sudeep Sarkar, Severam Mali Parihar. (*IJCAI'23*) [paper] [website] [code]

**Towards Automated Ethogramming: Cognitively-Inspired Event Segmentation for Streaming Wildlife Video Monitoring**, Ramy Mounir, Ahmed Shahabaz, Roman Gula, Jörn Theuerkauf and Sudeep Sarkar. (*IJCV (CV4Animals@CVPR'22)*) [paper] [website] [dataset] [code / docs]

**Time-Series Analysis of Video Graphs Using Joint Kalman Smoothing and Registration**, Aditi Bal, Ramy Mounir, Sathyanarayanan Aakur, Sudeep Sarkar and Anuj Srivastava. (*ECCV'22 Oral*) [Paper] [website] [Video]

**Spatio-Temporal Event Segmentation and Localization for Wildlife Extended Videos**, Ramy Mounir, Roman Gula, Jörn Theuerkauf and Sudeep Sarkar. (*CVIP'21 (CV4Animals@CVPR'21 Oral)*) [Paper] [website] [Video]

**BCI-Controlled Hands-Free Wheelchair Navigation with Obstacle Avoidance**, Ramy Mounir, Redwan Alqasemi, and Rajiv Dubey. (*IROS'18 workshop Oral*) [Paper] [website] [Video]

**Recent Assistive Technology Research at CARRT**, Ramy Mounir, Urvish Trivedi, Andoni Aguirrezabal, Daniel Ashley, Stephen Sundarrao, Redwan Alqasemi, and Rajiv Dubey. (*RESNA'18*) [Paper] [website] [Video]

**Speech Assistance for Persons With Speech Impediments Using Artificial Neural Networks**, Ramy Mounir, Redwan Alqasemi, and Rajiv Dubey. (*ISG'18 (ASME IMECE'17 Oral)*) [Paper] [website] [Slides]

## Professional Experience

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- 2024-2024** Research Intern, Numenta  
**2023-2023** Computer Vision Research Intern, Mitsubishi Electric Research Labs (MERL)  
**2016-Now** Graduate Research and Teaching Assistant, Computer Science, USF  
**2014-2017** R&D engineer, EarthLinked Technologies, Inc.

## Datasets

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### Bus Stop Tracking

<https://ramymounir.com/publications/BayesianTracking/>

2022

- 9000 Frames annotated with bounding box for over 25 actors
- Ids of actors are consistent across frames to be used for tracking evaluation
- The dataset features occlusions, partial and reappearing detections
- Video extracted from the Meva dataset

### Kagu Wildlife Monitoring

<https://datadryad.org/stash/dataset/doi:10.5061/dryad.kh18932bb>

2021

- Ten days of continuous streaming of the Kagu bird various environmental and lighting conditions
- 23 million frames annotated with spatial bounding box
- 5 events annotated temporally (e.g., walk in/out, nest building, feeding)
- Annotations for various environmental and time-of-day conditions (e.g., shadows, sunrise, sunset, etc.)

## Awards & Certificates

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- 2022 **Outstanding Reviewer award, ECCV'22**  
2022 **Highlighted Reviewer award, ICLR'22**  
2018 **Robotics Graduate Certificate, USF**  
2017 **Early Innovation Award, Intel Corporation** \$5,300  
2016 **Engineer in Training/ FE Mechanical, NCEES**  
2015 **Outstanding Graduate Award, University of South Florida**  
2015 **Certified LabVIEW Associate Developer, National Instruments**  
2014 **Certified Solidworks Associate (CSWA), Dassault Systèmes**

## Reviewer

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- 2024 **CVPR, ECCV, ICLR, ICML, WACV,**  
2023 **CVPR, TPAMI, ICCV, ICML, NeurIPS, WACV, IEEE RA-L,**  
2022 **CVPR, ECCV, NeurIPS, ICLR, WACV, IEEE RA-L, ACM MM,**  
2021 **CLVision@CVPR, ACM MM,**

## Skills

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- Programming** Python (PyTorch, Tensorflow, NumPy, Pandas, Scikit-learn. etc.), C++/C#  
**Miscellaneous** Linux, Shell, Vim, Unity3D,  $\LaTeX$ , Git, LabView, SolidWorks  
**Languages** English, Arabic

## Blog Articles

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- 2021 **Distributed Data Parallel with Slurm, Submitit & PyTorch,** *Medium*

## Invited Talks

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- Fall 2023. "Streaming Representation Learning and Event Segmentation in a Hierarchical Manner", *Numenta*  
Spring 2023. "Event Segmentation for Wildlife Monitoring", *CV grad class, USF*  
Fall 2021. "Self-Supervised Representation Learning", *AI+X Seminar, USF*  
Spring 2021. "Self-Supervised Temporal Event Segmentation", *CV grad class, USF*

**References available upon request.**