Diala Lteif

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Research Interests

Computer vision, explainable AI, representation learning, domain generalization, medical imaging applications.

Education

Boston University **Boston, Massachusetts, USA**
Ph.D. in Computer Science, GPA: 3.78/4.00 *Sept 2019 – Present*

American University of Beirut **Beirut, Lebanon**
BSc in Computer Science with distinction, major GPA: 4.00/4.00 *May 2019*

Honors and Awards

Grace Hopper Celebration Conference Award, Boston University *2020*
Dean's Honor List, American University of Beirut *2016-2019*
First place winning team in the ACM Lebanese Collegiate Programming Contest 2017, Beirut, Lebanon *2017*
Fifth place winning team over Lebanon in the IEEExtreme Programming Competition *2017*

Research Experience

Boston University **Boston, Massachusetts, USA**
Research fellow, with Profs. Bryan Plummer, Sarah Adel Bargal, and Vijaya Kolachalama *Summer 2021 – Present*
Working on domain generalization and robust representation learning for neuro-imaging with a focus on the application of dementia assessment.

Boston University **Boston, Massachusetts, USA**
Research fellow, with Prof. Sarah Adel Bargal *2020 – 2022*
Working on spatiotemporal visualizations for explaining deep video classification models.

Boston University **Boston, Massachusetts, USA**
Research fellow, with Prof. Bryan Plummer *2020 – Spring 2021*
Working on cross-layer parameter sharing for knowledge transfer and resource-efficient on-device machine learning.

Industry Experience

Inari Medical Inc. **Irvine, CA, USA**
Applied AI/ML Scientist Intern *June 2022 – Sept 2022*
Worked on developing novel AI solutions for minimally-invasive endovascular procedures, with the specific application of intravenous ultrasound medical imaging.

PinPay SAL, Beirut Digital District **Beirut, Lebanon**
Intern *Aug 2018 – Sept 2018*
Worked on Amazon Alexa, Google Assistant services and front-end web development.

Teaching Experience

Boston University **Boston, Massachusetts, USA**
Teaching fellow *AY 2019-2020, 2021-2022*
- CS542: Machine Learning (Fall 2021)
- CS330: Introduction to Algorithms (Spring 2020)
- CS103: Introduction to Internet Technologies and Web Programming (Fall 2019)

Future Developer Summer Camp, American University of Beirut **Beirut, Lebanon**
Instructor *July 2018*
Taught Unity and iOS development to students between the ages 12 and 18

Selected Graduate Coursework

CS585: Image and Video Computing
CS542: Machine Learning
CS640: Artificial Intelligence
CS530: Advanced Algorithms
CS535: Complexity Theory
CS552: Operating Systems
CS511: Formal Methods

Projects

Boston University

CS585 Final Project: *Image Deblurring Applied to Recycling Data* *2021*
Applied and evaluated existing classical and DL deblurring methods to a video of recycling trash moving on a conveyer belt.

CS542 Final Project: *Image Classification on Covid-19 X-rays* *2020*
Implemented binary and multi-class classification using VGG and ResNet backbone architectures in Keras on a Covid-19 X-ray dataset.

CS640 Final Project: *Facial Expression Analysis Based on Videos of Presidential Candidates* *2019*
Worked with classmates to extend existing state-of-the-art deep convolutional neural networks for sentiment analysis on video clips of the 2020 Democratic Presidential candidates.

American University of Beirut

Undergraduate Final Year Project: *Emotion Recognition in an Uncontrolled Environment* *2019*
Created an Android Application that predicted users' emotional state based on collected readings from ShimmerV3 Biophysical sensors and user self-assessment (in collaboration with the Psychiatry Department at AUBMC).

Papers

Papers Under Review

[1] Lteif, D., Sreerama, S., Bargal, S. A., Plummer, B. A., Au, R., & Kolachalama, V. B. Disease-driven domain generalization for neuroimaging-based assessment of Alzheimer's disease. *medRxiv, 2023-09.* *2023*

Publications

[1] Bashkirova, D., Mishra, S., Lteif, D., Teterwak, P., Kim, D., Alladkani, F., Akl, J., Calli, B., Bargal, S.A., Saenko, K., Kim, D., Seo, M., Jeon, Y., Choi, D., Ettedgui, S., Giryes, R., Abu-Hussein, S., Xie, B. Li, S. Visda 2022 challenge: Domain adaptation for industrial waste sorting. *In NeurIPS 2022 Competition Track* (*pp. 104-118*). *PMLR* *2022*

[2] Majumdar, S. S.*, Jain, S.*, Tourni, I. C.*, Mustafin, A., Lteif, D., Sclaroff, S., Saenko, K., Bargal, S. A. Ani-GIFs: A benchmark dataset for domain generalization of action recognition from GIFs. *Frontiers in Computer Science, 4. doi:10.3389/fcomp.2022.876846* *2022*

Professional Activities

BU Image and Video Computing Group **Boston, Massachusetts, USA**
Seminar Co-chair *AY 2021-22*
Invite speakers and organize weekly seminars at the IVC group at Boston University.

BU AI4ALL Program **Boston, Massachusetts, USA**
Guest Speaker *August 2021*
Gave a talk to high school students about Deep Learning and Explainable AI.

BU ACM-W student chapter, Boston University **Boston, Massachusetts, USA**
Graduate Student Advisor *FY 2020-21*
Coordinated the mentorship program and advocated for full engagement of women in computing and technology.

Club of Artificial Intelligence, American University of Beirut **Beirut, Lebanon**
Treasurer *Nov 2017 – May 2018*
a club that revolves around Artificial Intelligence, Machine Learning, and Data Mining.

ACM Arab Collegiate Programming Competition 2017 **Egypt**
Contestant *Nov 2017*
Competed and teamed with fellow AUB students in the 9th Arab Collegiate Programming Competition and ended up in the 31^{st} place in the MENA region out of 104 participating teams.

Skills

Languages
Python, Java, C#, C/ C++, Matlab, Javascript, SQL

Relevant Tools
Tensorflow, Keras, PyTorch, tensorboard, wandb.ai, AWS Cloud