

Rebecca Adaimi

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EDUCATION

From 08/17 to 08/23	University of Texas at Austin MS/PhD in Electrical and Computer Engineering <u>Track</u> : Decision, Information, and Communications Engineering (DICE) <u>Advisor</u> : Dr. Edison Thomaz <u>Graduation year</u> : 2023, GPA: 3.94 <u>Affiliations</u> : Wireless, Networking & Communications Group (WNCG); Institute for Foundations of Machine Learning (IFML); Intelligent Machine Engineering Consortium (iMAGiNE) <u>Research Interests</u> : Human-centered AI, continual/lifelong learning, mobile and ubiquitous computing, modeling human activity recognition	Austin, TX
From 08/17 to 12/20	University of Texas at Austin MS in Electrical and Computer Engineering <u>Track</u> : Decision, Information, and Communications Engineering (DICE) <u>Advisor</u> : Dr. Edison Thomaz GPA: 3.94	Austin, TX
From 09/13 to 06/17	American University of Beirut Bachelor in Electrical and Computer Engineering Minor in Biomedical Engineering GPA: 4.0. Dean's Honor for 4 years	Beirut, Lebanon

EXPERIENCE

From 06/23 to Present	OURA Ring Inc. Position: Machine Learning Data Scientist Manager: Dr. Ketan Patel Team: Health Sensing Team	Austin, TX (remote)
From 05/22 to 09/22	Apple Inc. Position: Research Intern Manager: Dr. Gierad Laput Team: Machine Intelligence Neural Design (part of AI/ML)	Pittsburgh, PA
From 05/20 to 08/20	X, The Moonshot Factory (formerly Google X) Position: AI Resident Manager: Pramod Gupta Team: Part of an early stage team working on a health tech moonshot (confidential project) in X <ul style="list-style-type: none">Worked on applying various ML/DL techniques (e.g. variational autoencoders, CNN, RNN, attention mechanism, sensor fusion) to identify health biomarkers in multimodal continuous sensor data from the AURORA studyMultimodal representation learning of longitudinal wearable and user survey time-series data for the detection/prediction of health statesInvestigated Attention-based Multimodal Multi-task Learning for predicting a user's healthOur research was featured in a company-wide newsletterSubmitted patents and co-authored a paperReceived a spot bonus and a peer bonus for my work	Mountain View, CA
From 05/19 to 08/19	Intel Corporation Position: Graduate Technical Intern for Machine Learning Manager: Tong Zhang Team: Network Platform Group within the Data Center Group <ul style="list-style-type: none">Worked on closed-loop network automation for improved network efficiency using deep reinforcement learningInvestigated telemetry feature selectionReceived Recognition AwardContributed to a documentation and white paper	Santa Clara, CA
From 08/17 to 08/23	Human Signals Lab, University of Texas at Austin Position: Graduate Research Assistant Supervisor: Dr. Edison Thomaz Research: Human-centered AI, human behavior perception	Austin, TX

- Developing adaptive and continual learning algorithms for sensor-based data streams
- Exploiting environmental acoustic sounds for recognizing activities of daily living using voice assistants
- Investigating multimodal deep learning for real-time human activity recognition using wearable sensor data
- Applying various ML/DL techniques (e.g.: CNN, RNN, transfer learning, sensor fusion) on longitudinal time series sensor data
- Organizing and conducting controlled and in-the-wild user studies for behavioral data collection

From 06/16 to 08/16

E. L. Ginzton Laboratory, Stanford University

Stanford, CA

Position: Visiting Student Researcher-Intern (VSRi)

Supervisor: Dr. Butrus Khuri-Yakub

Research: Transcranial High Intensity Focused Ultrasound

- One-dimensional, two-dimensional, and three-dimensional modeling of the brain using Comsol
- Modeling of piezoelectric wedge transducers using Comsol
- Study of lamb wave propagation in the skull bone and the ultrasound focusing in the brain
- Study of effect of skull bone characteristics on lamb wave propagation
- Dispersion curve analysis of lamb waves in skull bone
- Modeling of ultrasound focusing using laser beams

From 09/14 to 12/16

American University of Beirut

Beirut Lebanon

Position Held: Undergraduate Research Assistant

Supervisor: Dr. Zaher Dawy

Research: Seizure Prediction and Detection Optimization

- Cross-correlation analysis of EEG channels for optimizing epileptic seizure detection
- Applied ML techniques on EEG data for epileptic seizure detection/prediction

From 12/14 to 01/15

Hospital Notre Dame Du Liban

Jounieh, Lebanon

Position Held: Trainee – Biomedical Department

- Assisted in the repairing and maintenance of the medical equipment
- Gained knowledge of the different medical equipment

From 06/12 to 07/12

Harvard University

Cambridge, MA

Program: People to People Leadership Summit

- Improved leadership skills
- Attended leadership workshops

PUBLICATIONS (J: Journal C: Conference W: Workshop P: Preprint)

- C4 A Dataset for Foreground Speech Analysis with Smartwatches In Everyday Home Environments**
Dawei Liang, Zifan Xu, Yinuo Chen, *Rebecca Adaimi*, David Harwath, Edison Thomaz, ICASSP 2023
- C3 AudioIMU: Enhancing Inertial Sensing-Based Activity Recognition with Acoustic Models**
Dawei Liang, Guihong Li, *Rebecca Adaimi*, Radu Marculescu, Edison Thomaz, The 2022 International Symposium on Wearable Computers (ISWC '22) ****Best Paper Honorable Mention Award**
- P1 Automated detection of foreground speech with wearable sensing in everyday home environments: A transfer learning approach**
Dawei Liang, Zifan Xu, Yinuo Chen, *Rebecca Adaimi*, David Harwath, Edison Thomaz, ArXiv 2022
- J4 Lifelong Adaptive Machine Learning for Sensor-based Human Activity Recognition Using Prototypical Networks**
Rebecca Adaimi and Edison Thomaz, *Sensors*. 2022
- J3 Leveraging Sound and Wrist Motion to Detect Activities of Daily Living with Commodity Smartwatches**
Sarnab Bhattacharya*, *Rebecca Adaimi**, Edison Thomaz, Proceedings of the ACM Interactive Mobile Wearable Ubiquitous Technologies (IMWUT) 2022 (*equal contribution)
- J2 Ok Google, What Am I Doing? Acoustic Activity Recognition Bounded by Conversational Assistant Interactions**
Rebecca Adaimi, Howard Yong, Edison Thomaz, Proceedings of the ACM Interactive Mobile Wearable Ubiquitous Technologies (IMWUT) 2021
- W2 Using Convolutional Variational Autoencoders to Predict Post-Trauma Health Outcomes from Actigraphy Data**
Ayse S. Cakmak, Nina Thigpen, Garrett Honke, Erick Perez Alday, Ali Bahrami Rad, *Rebecca Adaimi*, Chia Jung Chang, Qiao Li, Pramod Gupta, Thomas Neylan, Samuel A. McLean, Gari D. Clifford, Proceedings of the Machine Learning for Mobile Health NeurIPS Workshop 2020
- W1 Usability of a Hands-Free Voice Input Interface for Ecological Momentary Assessment**
Rebecca Adaimi, Ka Tai Ho, Edison Thomaz, IEEE International Conference on Pervasive Computing and Communications Workshops (PerCom Workshops) 2020
- C2 Eating Episode Detection with Jawbone-Mounted Inertial Sensing**
Keum San Chun, Hyoyoung Jeong, *Rebecca Adaimi*, Edison Thomaz, 42nd Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC) 2020
- J1 Leveraging Active Learning and Conditional Mutual Information to Minimize Data Annotation in Human Activity Recognition**
Rebecca Adaimi and Edison Thomaz, Proceedings of the ACM Interactive Mobile Wearable Ubiquitous Technologies (IMWUT) 2019

- C1 Towards a Generalizable Method for Detecting Fluid Intake with Wrist-mounted Sensors and Adaptive Segmentation**
Keum San Chun, Ashley B. Sanders, *Rebecca Adaimi*, Necole Streeper, David E. Conroy, Edison Thomaz, Proceedings of the 24th International Conference on Intelligent User Interfaces (IUI) 2019

SELECTED PROJECTS

- Computer Vision Project: PhotoLocate: Self-Supervised Camera Localization Inside Panorama with Convolutional Neural Networks
- Reinforcement Learning Project: Devising an optimal interruption policy that minimizes user interruptibility using adaptive RL
- Convex Optimization Project: Towards Understanding Regularization in Normalization Layers in Deep Neural Networks
- Mobile Computing Project: Locality Dependent Gesture-based Smart Home Control System Using Bluetooth Technology
- Data Science Project: Predicting Soccer matches
- Final Year Project: A Drone Vision System for Security Surveillance with an Accelerated Design for Deep Learning Face Recognition (In collaboration with Intel)
- Intro to ECE Project: Designing and implementing a gaming console using LabView
- Data Structures and Algorithms Project: Designing databases for a new computer store along with the customer's and manager's user interfaces using C++ programming language

ADVISING AND MENTORING

- Howard Yong (undergraduate)
- Jake Leverett (undergraduate)

TEACHING

- **Teaching Assistant – Fall 2020, UT Austin**
EE 382V: Activity Sensing and Recognition

SERVICE

LEBNET:

- Early in Career steering committee

PROGRAM COMMITTEE:

- FAccT 2023

STUDENT VOLUNTEER:

- UIST (Program Committee) 2022
- UbiComp 2021
- UbiComp 2020
- PerCom 2020

REVIEWER:

- Proceedings of the ACM Interactive Mobile Wearable Ubiquitous Technologies (IMWUT)
- IEEE Engineering in Medicine & Biology Society (EMBC)
- Neural Processing Letters
- The ACM Symposium on User Interface Software and Technology

AMBASSADOR:

- IEEEExtreme 15.0

AWARDS

- **Alton R. and Doris A. Hagedorn Endowed Graduate Fellowship in Engineering, UT Austin – 2022-2023**
- **Agnes T. and Charles F. Wiebusch Fellowship, Cockrell School of Engineering, UT Austin – 2021-2022**
- **Dean's Honor (High Distinction), AUB – 2013-2017**

CERTIFICATES

- **NVIDIA DLI Certificate - Fundamentals of Deep Learning for Computer Vision**, NVIDIA Deep Learning Institute, 2019
Credential ID: 41fdd703b40a43b48da73305b9538345
Credential URL: <https://courses.nvidia.com/certificates/41fdd703b40a43b48da73305b9538345>

SUMMARY SKILLS

COMPUTER SKILLS: Experienced in Python (Pytorch, Keras, Tensorflow, Scikit-learn), Java, Matlab; Worked and have some knowledge in Android Development, C++, LabView

LANGUAGES: English (fluent), Arabic (fluent) and French (proficient)

RESEARCH SKILLS: Algorithm, Signal Processing, Statistical Analysis, Machine Learning, Deep Learning, Representation Learning

EXTRACURRICULAR ACTIVITIES

GRADUATE UNIVERSITY ACTIVITIES (UT AUSTIN):

- Treasurer of Electrical Longhorn Ladies in Engineering Organization (ELLE) (2020-2022)

UNDERGRADUATE UNIVERSITY ACTIVITIES (AUB):

- Treasurer of Women in Engineering (WIE) of IEEE AUB Student Branch (Sept. 2014-May 2017)
- Treasurer of AUB-Biomedical Engineering Society (AUB-BMES) (Sept. 2015-May 2016)
- President of AUB-Biomedical Engineering Society (AUB-BMES) (Sept. 2016-May 2017)