

# RAIDA KARIM

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## EDUCATION

**University of Washington (UW)**, Seattle, Washington (WA), USA

- B.S. in Computer Science Sep 2017 – Jun 2021
  - Course Highlights: Data Structures & Parallelism, Database Management, Computer Science Pedagogy, Machine Learning, Artificial Intelligence (AI), Robotics Capstone, Natural Language Processing (NLP), Entrepreneurship, AI-Based Mobile Robotics

## RESEARCH INTERESTS

- Applications of Robotics, Artificial Intelligence, Human-Computer Interaction, and Quantum Computing to address health, and sustainability issues
- Using Machine Learning, and Data Science to analyze large-scale data and inform sustainable interventions for the environment and human health

## RESEARCH EXPERIENCE

**Human-Centered Robotics Lab**, UW Seattle, WA

- Undergraduate Researcher Jun 2020 – Present
- Project: Stress Research - Measure and Intervene in Adolescent Stress with A Social Robot EMAR
- Supervisors: Dr. Maya Cakmak, Dr. Elin A. Björling and Dr. Patrícia Alves-Oliveira
  - Develop software in a social robot using JavaScript, HTML, and CSS to measure and intervene in adolescent stress
  - Conduct pilot and user participatory sessions with teenagers to test interventions and collect feedback
  - Mentor younger students and one undergraduate researcher to provide feedback and guidance
  - Conduct outreach to raise mental-health awareness among middle- and high-school students (St. Thomas School, April 2021)

**NLP Group, Computer Science & Engineering (CSE) Department**, UW Seattle, WA

- Undergraduate Researcher Sep 2019 – Mar 2020
- Project: Math Word Problem Generation using Transformer Model Architecture
  - Generated, analyzed, and visualized math word problems from MathQA dataset ([https://math qa.github.io/math-QA/](https://mathqa.github.io/math-QA/)) that consists of 37, 200 math word problems
  - Conducted semantic analysis using transformer model architecture

## INDUSTRY EXPERIENCE

**U.S. Army Research Institute of Environmental Medicine**, Natick, MA; US Department of Defense

- X-Force Fellow, National Security Innovation Network Jun 2021 – Present
- Project: Holodeck Project - Optimally Acquire Physical Properties of Land for User Specified Target Location on Earth
- Supervisors: Dr. Gary P Zientara, and Dr. Mark R Kanner
  - Develop software to extract that specific property data of land for the target location's Global Positioning System (GPS) cords at the current time of day
  - Integrate software with graphical user interface (GUI) to generate interactive experience for battle field management, terrain detection, and land navigation.
  - Find websites that provide free online access to database(s) with necessary data (descriptive physical info) for the target locations

**Cisco Systems, Inc.**, Seattle, WA

- Software Engineering Intern Jun 2020 – Sep 2020
  - Automated populating and sending customized welcome emails to global customers of Webex messaging, meeting, and calling services for distinct licenses
  - Gained software development experience using Java Spring Boot framework, Git for enterprise collaboration, Mockito and TestNG testing frameworks to develop robust test suites

## RESEARCH PRESENTATIONS

**UW Board of Regents**, Virtual May 2021

- Karim, R.(2021), Stress Research: Measure and Intervene in Adolescent Stress with a Social Robot EMAR. Presented summary of my research and importance of research experience to my education. Participated in Q/A with the Regents.

**UW Undergraduate Research Symposium**, Virtual May 2021

- Karim, R.(2021), Stress Research: Measure and Intervene in Adolescent Stress with a Social Robot EMAR. Poster presented through 5-minute lightning talk.

**Stanford Research Conference (SRC)**, Virtual Apr 2021

- Karim, R.(2021), Stress Research: Measure and Intervene in Adolescent Stress with a Social Robot EMAR. Poster presented during 10-minute live judging session.

**National Conference on Undergraduate Research (NCUR)**, Virtual Apr 2021

	<ul style="list-style-type: none"> <li>• Karim, R.(2021), Stress Research: Measure and Intervene in Adolescent Stress with a Social Robot EMAR. Poster presented through 5-minute lightning talk.</li> </ul>	
	<b>UW Gabriel E. Gallardo Symposium (aka Annual McNair Conference)</b> , Virtual	Apr 2021
	<ul style="list-style-type: none"> <li>• Karim, R.(2021), Stress Research: Measure and Intervene in Adolescent Stress with a Social Robot EMAR. Poster presented through 5-minute lightning talk.</li> </ul>	
	<b>St. Thomas School, Medina, Washington</b> , Virtual	Apr 2021
	<ul style="list-style-type: none"> <li>• Karim, R.(2021), Stress Research: Measure and Intervene in Adolescent Stress with a Social Robot EMAR. Oral presentation of 10-minute duration in the Hour of Code event.</li> </ul>	
<b>CONFERENCE PARTICIPATION &amp; TOURS</b>	<b>Cornell, Maryland, Max Planck Pre-doctoral School (CMMRS) 2021</b> , Virtual	Aug 2021
	<ul style="list-style-type: none"> <li>• Selected to participate in full intellectual experience of CMMRS, including opportunities for close interaction and networking among attendees, with doctoral students, and with faculty from the participating organizations, in addition to the technical lectures and panels.</li> </ul>	
	<b>International Conference on Social Robotics (ICSR)</b> , Virtual	Nov 2020
	<ul style="list-style-type: none"> <li>• Participated in keynote, robot demo, and paper discussion sessions</li> </ul>	
	<b>Grace Hopper Celebration for Women in Computing</b> , Virtual	Sep 2020 – Nov 2020
	<ul style="list-style-type: none"> <li>• Participated in workshops held on mentorship, work-life balance, and career fair</li> </ul>	
	<b>ACM Richard Tapia Celebration of Diversity in Computing</b> , San Diego, CA	Sep 2019
	<ul style="list-style-type: none"> <li>• Represented Allen School in workshops and career fair booth</li> <li>• Participated in workshops held on resilience, journal publication, and career fair</li> </ul>	
	<b>Tableau Site Visit, Tableau Software</b> , Seattle, WA	Nov 2018
	<ul style="list-style-type: none"> <li>• Participated in professional development workshop in a cohort of 20 UW students</li> <li>• Engaged in informational and networking sessions with Tableau employees</li> </ul>	
<b>HONORS &amp; AWARDS</b>	<b>Husky 100 Award</b>	May 2021
	<ul style="list-style-type: none"> <li>• Awarded annually to 100 UW students for making the most of their Husky experiences</li> </ul>	
	<b>UW Undergraduate Conference Travel Award</b>	Jan 2021
	<ul style="list-style-type: none"> <li>• Awarded for poster presentation on research about stress intervention with social robots at NCUR</li> </ul>	
	<b>Levinson Emerging Scholars Award</b>	Oct 2020 – Jun 2021
	<ul style="list-style-type: none"> <li>• Received for research on stress intervention with social robots</li> </ul>	
	<b>UW CSE Grace Hopper Conference Scholarship</b>	Jul 2020
	<ul style="list-style-type: none"> <li>• Received registration funding to participate in Grace Hopper Conference from Allen School</li> </ul>	
	<b>UW OMA&amp;D Merit Award Scholar</b>	Mar 2018 – Dec 2020
	<ul style="list-style-type: none"> <li>• Received for academic and scholarly accomplishments as an OMA&amp;D student</li> </ul>	
	<b>Mary Gates Research Scholar</b>	Mar 2020
	<ul style="list-style-type: none"> <li>• Received for research on stress intervention with social robots</li> </ul>	
	<b>Denice Dee Denton Endowment in CSE</b>	Sep 2019
	<ul style="list-style-type: none"> <li>• Received for commitment to social justice, diversity, and excellence as a CSE student</li> </ul>	
	<b>UW CSE Tapia Conference Scholarship</b>	Jun 2019
	<ul style="list-style-type: none"> <li>• Received travel, registration and lodging funding to attend Tapia conference from Allen School</li> </ul>	
	<b>Ronald E. McNair Scholar</b>	May 2019
	<ul style="list-style-type: none"> <li>• Selected for demonstrating strong academic potential for graduate education</li> </ul>	
	<b>UW OMA&amp;D Exemplary Mentor Award</b>	Mar 2018
	<ul style="list-style-type: none"> <li>• Received for outstanding contribution as a peer mentor in the MPFS program</li> </ul>	
<b>TECHNICAL QUALIFICATIONS</b>	<ul style="list-style-type: none"> <li>▪ Programming Languages: Java, Python, SQL/SQL++, C/C++, R, JavaScript, HTML, CSS</li> <li>▪ Libraries/Frameworks: PyTorch, Matplotlib, Cozmo SDK, OpenCV, NumPy, Spring Boot, RStudio</li> <li>▪ Tools: Git, Linux/Unix, IntelliJ, Maven, LaTeX, Azure, AWS, Spark, AsterixDB</li> </ul>	
<b>RELEVANT COURSE PROJECTS</b>	<b>DuckieTraffic - AI Based Mobile Robotics</b> , CSE 571	May 2021 – Jun 2021
	<ul style="list-style-type: none"> <li>• Implementing lane following and adding two functions: when the Duckiebot robot detects a stop sign (previously mapped and unmapped) in front of it, it will firstly turn left, go straight and then turn right to avoid that stop sign and go back to the original lane (real-time detection and reaction); also, given two points A and B, the robot can go from A to B following the lane.</li> <li>• Final robot demonstration: making a video demoing that given two points A and B, one robot can successfully go from A to B following lanes and avoiding all the stop signs on the road. We plan to do multiple experiments with random placed traffic signs.</li> </ul>	
	<b>Binary Text Classification - Machine Learning</b> , CSE 446	Mar 2021

- Classified movie reviews as Positive (1) or Negative (0) on Stanford Sentiment Treebank (SST-2) dataset using Recurrent Neural Network (RNN) types of vanilla RNN, Long short-term memory (LSTM), and Gated recurrent units (GRUs)
- Embedded input “token” from movie reviews in high-dimensional continuous space using GloVe embeddings
- Generated a hidden state from each RNN cell feeding last hidden state into fully connected layer producing a single prediction between 0 and 1

**CozmoTA – Robotics Capstone, CSE 481** May 2020 – Jun 2020

- Developed a robot Teaching Assistant (TA) using Cozmo Software Development Kit (SDK) in a three-member team
- Implemented navigation, manipulation, and perception capabilities in the robot TA for elementary classes

**Bio.me (Startup Prototype) – Entrepreneurship, CSE 490** Jan 2020 – Mar 2020

- Prototyped startup to deliver instant nutritional service to IBS (Irritable Bowel Syndrome) patients
- Solidified technicalities of product features with market fit
- Managed dependencies of all teams – research, marketing/sales, and customer support

**Seattle Gentrification App – Data Analysis & Visualization, Informatics 201** Jan 2019 – Mar 2019

- Developed an interactive app to show gentrification effects in Seattle comparing to other US cities
- Utilized RStudio packages for data wrangling, interactive plot visualizations, and user interface

**TEACHING  
& PEER  
MENTORING  
ENGAGEMENT**

**CSE 190B: CSE Direct Admit Seminar, Paul G. Allen School, UW**

- Undergraduate Teaching Assistant Sep 2020 – Dec 2020
  - Organized and led a seminar for first-year computer science students interested in getting involved in undergraduate research and pursuing research-based careers

**CSE 390T: CSE Transfer Seminar, Paul G. Allen School, UW**

- Invited Presenter May 2020
  - Delivered presentation on research opportunities in Allen School and UW, and research-based career pursuits to newly admitted CSE transfer students from community colleges

**Big/Little Mentorship Program, Association for Computing Machinery (ACM), UW**

- Peer Mentor Apr 2020 – Jun 2020
  - Familiarized a newly admitted CSE student with departmental offerings and student experience in a mentoring partnerships

**Mentor Power for Success Program (MPFS), Office of Minority Affairs & Diversity (OMA&D), UW**

- Program Lead Sep 2019 – Dec 2019
  - Provided mentoring training, advising and weekly feedback to mentor-protégé pairs
  - Coordinated logistics, and marketing for 6 events serving up to 60 students at a time
- Peer Mentor Sep 2018 – Dec 2018
  - Provided mentoring to a new UW student from minority background to familiarize with campus experience, academics, and student support services

**ACTIVITIES &  
LEADERSHIP**

**Google Computer Science Research Mentorship Program (CSRMP), Virtual**

- Mentee Feb 2021 – Apr 2021
  - Mentor: Dr. Igor Mordatch
  - Engage in 1:1 mentoring relationship with a Google Brain research scientist and network with other CSRMP fellows

**Husky Leadership Certificate (HLC) Program, UW Seattle, WA**

- Mentee Jan 2021 – May 2021
  - Engage in 1:1 mentoring relationship with a UW alumni to reflect on leadership skills gained through experiences and develop a leadership portfolio, which can be found here: <https://sites.google.com/cs.washington.edu/raidak>

**AmeriCorps College Support Services Corps, UW Seattle, WA**

- Student Coach Jan 2021 – May 2021
  - Coach college students to support academics, extracurricular and future aspirations through service, fundraising, and professional development engagement with URP, DRS, CSRMP, HLC, and McNair

**Disability Resources for Students (DRS), UW Seattle, WA**

- Note-taker Jan 2021 – Mar 2021
  - Provide access to my own class notes from the Artificial Intelligence (CSE 473) course lectures to classmates whose documented disability affects their ability to document their own class notes

**Undergraduate Research Program (URP), UW Seattle, WA**

- Undergraduate Research Leader Sep 2020 – Jun 2021

- Excite students about undergraduate research through outreach activities such as class presentations and panels, and direct them to resources and opportunities for developing undergraduate research career
- Session Assistant May 2021
  - Assisted lightning talk presentations virtually with zoom meeting settings, Q/A session technologies, and facilitated screen sharing for pre-recorded videos in the 24th UW Undergraduate Research Symposium
- Abstract Reviewer Feb 2020, Mar 2021
  - Reviewed and edited abstracts of research presentations for the 23rd and 24th UW Undergraduate Research Symposium
- Oral Presentation Assistant Apr 2019
  - Assisted setting up oral presentation podiums, room technologies, and facilitated 10 presenters with timing and slide deck upload in the 22nd UW Undergraduate Research Symposium

**COVID-19 Literature Surveillance Team (LST), UW Seattle, WA**

- Web Developer May 2020 – Jun 2020
  - Worked on software integration to overhaul the navigation of the website

**Association for Computing Machinery (ACM), UW Seattle Chapter, WA**

- Secretary Sep 2019 – Jun 2020
  - Elected to represent CSE peers; administered memberships, registrations, and documentations
  - Coordinated CSE Research Night 2020 for 150+ undergraduates; co-organized quarterly events

**Engineering Discovery Days, UW Seattle, WA**

- Project Presenter Apr 2020
  - Presented projects of Human-Computer Interaction (HCI) to visitors

**STEM Paths Innovation Network (SPIN) Girls, UW Seattle, WA**

- Event Organizer Jun 2018 – Jul 2018
  - Organized Meet & Greet, and Mentoring Circles for program participants

**PROFESSIONAL AFFILIATIONS**

**Mortar Board Tolo Chapter, National College Senior Honor Society, UW Seattle, WA**

- Membership Chair Apr 2021 – Present
  - Collaborate with fellow membership co-chairs to develop feasible and working recruitment and selection strategy for applicants
  - Exhibit positive attitude about Mortar Board, and have willingness to promote in-person and/or via social media/website platforms
  - Collaborate and discuss with officers and members to help plan chapter activities

**Society of Women Engineers (SWE), UW Seattle, WA**

- Member Jul 2020 – Present

**Science & Engineering Business Association (SEBA), UW Seattle, WA**

- Member Jun 2020 – Present

**ADDITIONAL WORK EXPERIENCES**

**Barnes & Noble, Inc., Seattle, WA**

- Customer Service Associate Sep 2017 – Mar 2018
  - Collaborated in staff team to finalize weekly store strategies and sales targets
  - Assessed sales activity, transactions/reservations, and organized product supplies

**PCC Natural Markets, Seattle, WA**

- Courtesy Clerk Feb 2017 – Apr 2017
  - Assisted customers in product selection, bagged items and helped in carrying out
  - Packaged and organized product supplies collaborating with 25+ store teammates
  - Coordinated early-hours and after-work cleanliness and safety check

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