

Malak Mahdy

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EDUCATION

Texas A&M University-Corpus Christi — GPA: 3.81

Corpus Christi, TX

Bachelor of Science in Computer Science, Minors in Mathematics & Criminal Justice

Aug. 2022 – Dec. 2025

Master's Fast-Track Graduate Courses: Artificial Intelligence, Design and Analysis of Algorithms

RESEARCH EXPERIENCE

Research Scholar

Fall 2025

Texas A&M University-Corpus Christi

Corpus Christi, TX

- **Research keywords:** agentic AI, multi-agent orchestration, HCI, machine learning, security
- Extended CAHSI NSF REU work by developing autonomous computer-use agents (ACUAs) that address evaluation limitations in security and usability
- Expanding research to address inherent LLM limitations such as chain-of-thought (COT) reasoning by discovering external solutions with ongoing investigation of methods to enhance agent capabilities
- Authoring manuscripts to disseminate findings in peer-reviewed venues

Research Assistant

Fall 2025

University of Nevada, Las Vegas, NSF

Remote

- **Research keywords:** large language models (LLMs), retrieval-augmented generation (RAG), machine learning
- Invited to continue research from UNLV NSF REU as an extended contributor
- Leading the design and evaluation of LLM-driven analytical methods for knowledge-intensive tasks
- Co-authoring manuscripts based on ongoing research outcomes

Research Scholar – Smart Cities REU

Summer 2025

University of Nevada, Las Vegas, NSF

Las Vegas, NV

- **Research keywords:** large language models (LLMs), optimization algorithms, machine learning
- **Project I:** Designed novel LLM-pipeline optimization methods for analyzing construction accident reports
- Developed a prototype to process and extract insights from unstructured safety reports, serving as the sole computer scientist on an interdisciplinary team
- Evaluated new optimization strategies to improve pipeline efficiency and narrative tone extraction
- **Project II:** NDA research on LLM optimization for system analysis
- Collaborated with civil engineers to develop LLM optimization techniques for enhanced pattern extraction

Research Scholar – REU

Fall 2024 & Spring 2025

University of Texas at El Paso, New Mexico State University, NSF, CAHSI

Corpus Christi, TX

- **Research keywords:** large language models (LLMs), agentic AI, HCI, security
- Researching large language models for secure and accurate GUI task automation through two REU cycles
- Investigating the security and privacy implications of autonomous computer-use agents (ACUAs) by developing quantitative and qualitative assessment rubrics and deploying practical implementations
- Adopting an interdisciplinary approach by integrating principles of human-computer interaction (HCI) into AI-driven systems

ExLENT Mechatronics and Robotics

Spring 2025

Michigan Technological University, NSF

Houghton, MI

- Developed expertise in electrical, mechanical, robotic, and PLC systems through hands-on training in mechatronics labs and 5-month online training
- Engaged with leading industrial partners, gaining hands-on exposure to real-world industrial applications of mechatronics

TEACHING EXPERIENCE

Teaching Assistant – College Algebra

Fall 2025

Texas A&M University-Corpus Christi

Corpus Christi, TX

- Teaching and designing three mandatory 1-hour recitation sessions per week for 29 students, delivering structured instruction that reinforced lecture content and developed problem-solving skills
- Providing weekly office hours for individualized support, helping students strengthen foundational skills and improve course performance
- Collaborating closely with the course professor by attending all lectures
- Integrating evidence-based pedagogy into instruction by completing bi-weekly training workshops on teaching strategies and student engagement

PROFESSIONAL EXPERIENCE

BIG Event Coordinator

May 2023 – May 2025

Texas A&M University-Corpus Christi

Corpus Christi, TX

- Organized TAMU-CC's chapter of a nationwide student volunteer event across 5 major Texan cities with 600 participants
- Doubled participation and volunteer hours through strategic partnerships
- Coordinated with corporate sponsors, local non-profits, various university departments, and student organizations
- Navigated complex regulations from various entities to remain in compliance

Information Technology Intern

Fall 2024

BHP Engineering & Construction

Corpus Christi, TX

- Applied security updates and patches to reduce vulnerabilities
- Delivered IT support for hardware, software, and network issues

PUBLICATIONS & PRESENTATIONS

Papers

- “Beyond the Chatbox: An Exploratory Case Study of Autonomous Computer-Use Agents,” *Under Review at IEEE CogMI 2025 AIRET Workshop*, **Malak Mahdy**, Carlos Rubio-Medrano
- “Towards Capable and Secure Autonomous Computer-Use Agents,” *Under Review at AAAI 2026 SAPP*, **Malak Mahdy**, Carlos Rubio-Medrano
- NDA Paper on Large Language Models for System Analysis, *Under Review at ICCEPM 2025*, Niloy Das, **Malak Mahdy**, Jee Woong Park, Pramen Shrestha
- NDA Paper on Construction Accident Reports, *Under Review at CI-CRC 2026*, Unmesa Ray, **Malak Mahdy**, Jee Woong Park
- “Optimizing Large Language Model Workflows for Construction Accident Analysis,” *In Preparation*, Unmesa Ray, **Malak Mahdy**, Jee Woong Park

Presentations

- “Exploring Large Language Models for Secure Computer Task Automation” at *International Women in Cybersecurity Student Poster Competition*, April 2025 (Awarded 2nd Place)
- Upcoming at *Great Minds in Stem, National Student Poster Competition*, October 2025

AWARDS

Johns Hopkins University – Explore Hopkins

Aug. 2025

- Invited by JHU's Whiting School of Engineering to meet potential PhD advisors and tour labs during a fully-funded visitation

International Women in Cybersecurity Student Poster Competition

April 2025

- Awarded second place for poster presentation, “Exploring Large-Language Models for Secure Computer Task Automation” judged by a panel of 25 experts

Great Minds in STEM Scholarship

July 2025

- Awarded a fully-funded scholarship to present research at GMiS Research Poster Competition

CAHSI-CRA Scholar

March & Sep. 2025

- Twice awarded a financial stipend for research and academic performance, to regularly attend Computing Research Alliance and Computing Alliance of Hispanic-Serving Institutions research and graduate school workshops

NSF Louis Stokes Alliance for Minority Participation (LSAMP)

Jan 2025

- Awarded an NSF LSAMP scholarship for research regarding autonomous computer-use agents

Islander Leadership Scholarship

March 2025

- Selected as recipient for the Islander Leadership Scholarship (2024-2025 academic year), based on leadership positions, volunteer experience, and GPA

Presidential Scholarship

Aug. 2022

- Selected as recipient for the Presidential Scholarship (2022-2026), TAMU-CC's highest-level scholarship based on academic performance

PROJECTS

AI Degree Planner Assistant – EaseMyDegree | *OpenAI API, Firebase, Node.js, React.js, Git*

Fall 2024

- Developed a web application that provides personalized degree suggestions using GPT-4o for semester-by-semester course planning
- Integrated GPT-4o-driven career advice tailored to the user's school and academic background
- Implemented a GPT-4o-driven GPA calculator that determines the grades needed to achieve target GPAs

Language Learning Application – SMRT Vocab | *Python, Git, Pycharm*

Fall 2024

- Collaborated with a team to develop an application utilizing Zipf's law for vocabulary retention across languages
- Designed features for a customizable learning experience, and implemented user-interface
- Produced professional-grade documentation to support the application's functionality and user experience

LEADERSHIP & SERVICE

CAHSI Advocate

Fall 2025

Texas A&M University-Corpus Christi

Corpus Christi, TX

- Advocate for the Computing Alliance of Hispanic-Serving Institutions (CAHSI) by promoting student participation in research and STEM initiatives
- Organize and lead workshops on research methodologies
- Present in lectures and events to engage students and encourage involvement with CAHSI

Alternative Winter Break

Dec. 2022

Texas A&M University-Corpus Christi, Student Volunteer Connection

New Orleans, LA

- Traveled to New Orleans, Louisiana for the sole purpose of volunteering for education-related organizations
- Volunteered at local socioeconomically disadvantaged schools, food banks, gardens, museums, and Down Syndrome resource centers
- Served over 20 hours in total volunteer time

Student Representative

Feb. 2023

Texas A&M University-Corpus Christi, Student Government Association

Austin, TX

- Represented Texas A&M University-Corpus Christi at the Texas legislative session on February 28th, 2023
- Advocated for the advancement of TAMU-CC by engaging with Texas senators and representatives
- Collaborated with state lawmakers to discuss higher education initiatives and promote the university's goals

Regular Volunteer Service

Present

Texas A&M University-Corpus Christi, Student Volunteer Connection

Corpus Christi, TX

- Contributed nearly 100 hours of volunteer service across local food banks, retirement homes, animal shelters, gardens, and religious centers
- Engaged in diverse community support efforts including meal and hygiene kit distribution, facility upkeep, event coordination, and direct assistance to underserved populations