ASMA KHAN

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EDUCATION

University of Utah: **Salt Lake City, UT**

M.S. Computer Science, *Graphics and Visualization (Thesis)* *May 2026*

B.S. Computer Science *(Thesis)* *May 2026*

- **Relevant Courses:** Image Processing, Visualization for Data Science, Computer Systems, Algorithms, Computer Organization, Models of Computation, Linear Algebra, Software Practice, Mobile Application Development, Probability and Statistics for Engineers, Discrete Structures

RESEARCH & PROFESSIONAL EXPERIENCE

Scientific Computing and Imaging Institute (SCI Institute) **Salt Lake City, UT**

Graduate Research Assistant supervised by Dr. Shireen Elhabian *July 2023 - Present*

- Co-author on semi-supervised benchmarking study comparing a range of semi-supervised and deterministic reconstruction methods to evaluate viability for shape models across challenging anatomies.
- "Barely-SSM" [paper]: Benchmarked statistical shape modeling performance in complex low-annotation scenarios using weakly-supervised and foundational segmentation models. Achieved comparable statistical shape modeling performance while reducing the annotation burden by 60-80% compared to baseline manual segmentation methods in clinical applications.
- Developed clinically relevant morphological modes of variation for challenging anatomies of right-ventricular and outflow-tract of paediatric cardiac patients.
- Streamlined relevant pipeline processes using modality conversion, segmentation and preprocessing of cardiac, femur, and kidney MRI slices using semi-automatic tools [MonaiLabel, MedSAM] and manual image processing techniques.
- Built region-specific models using shape modeling optimization by applying modular, object-oriented design principles.

Human Centered Computing Lab **Salt Lake City, UT**

BS/MS Research Assistant supervised by Dr. Vineet Pandey *January 2025 - Present*

- Secured 1st place at the *Innovations in Women's Health Symposium (May 2025)* by developing a digital health project to co-design and qualitatively evaluate a personalized menstrual tracking intervention to empower participants with their own self-tracked data to improve communication concerns with clinicians.
- Co-authored clinician-patient project on communication needs for the movement disorder population, contributed HCI aligned digital health tools for clinical settings aligning with accessible and inclusive design *(in submission ACM CHI 26).*
- Co-author on needfinding study for Physical and Occupational Therapists, exploring digital health tools for clinical work in motor assessment emphasizing usability, empathy, and user empowerment.

Kahlert School of Computing **Salt Lake City, UT**

Teaching Assistant *January 2024 - Present*

- CS [4530, 3011, 3100, 1010] tasks varied across course needs from guiding *~150* students through Python programming basics; teaching object-oriented design; curating accessible tutorials for models of computation i.e. finite-state automata and Turing machines via Jove; creating an emphasis on accessibility of content; to leading weekly recitations and office hours.

Peer Mentor *August 2023 - December 2023*

- Mentored *~60* freshmen through various activities aimed to help them achieve successful academic careers in CS.

REU Site: Trust and Reproducibility of Intelligent Computation **Salt Lake City, UT**

Undergraduate Researcher: Sponsored by the National Science Foundation (NSF) *June 2023 - August 2023*

- SSM model for Anatomical Datasets: wrote a *7-page* NSF REU report and poster to present project findings and future work; acknowledgement in published article with Association for Computing Machinery (ACM).

  SC-W '23: Proceedings of the SC '23 Workshops of The International Conference on High Performance Computing, Network, Storage, and Analysis November 2023 Pages 343–349 https://doi.org/10.1145/3624062.3624100

- Explorational studies on topics of High Performance Computing, Machine Learning, and Wireless Networking.

REU Site: Symbolic Formal Differencing of RISC-V Programs **Salt Lake City, UT**

Undergraduate Researcher: Supervised by Dr. Ganesh Gopalakrishnan (Supported by the NSF) *January 2023 - June 2023*

- Adapted an existing equivalence verification system (CASM-VERIFY) designed for x86 binaries to handle RISC-V instructions using SMT (Satisfiability Modulo Theory) under the context of Crypto Algorithm Verification resulting in presenting a poster at a Undergraduate Research Symposium.

Trellix **Draper, UT**

Cybersecurity Engineering Intern *May 2022 – January 2023*

- Managed *25* clients for Cloud products, Helix Parsing for *7* parsing tickets, PX appliances for license generating, applied analytical skills to diagnose behaviours of Core (Network, Email, SIEM) appliances, and vLabs for VM creation for application specific detection to fulfill average of *10* cases daily (mixture of US-GOV and Platinum level clients).
- Modified detection algorithms using analytics and developed a sustainable employee training page via Confluence.

The Daily Utah Chronicle **Salt Lake City, UT**

Social Media Manager *October 2021 – May 2022*

- Led a team of *6* creators, developed digestible content aimed for the general public, wrote daily newsletters and coordinated advertisements and sponsorships.
- Increased engagement for Instagram with growth rate of *33%* and Twitter with engagement rate of *27%* within *5* months.

Social Media Assistant Manager *July 2021 - December 2021*

- Performed weekly analysis of marketing data using Google Analytics; increase of *12%* on Instagram in *3* months.

Kumon **Salt Lake City, UT**

Math Tutor *December 2018 - April 2019*

- Assisted *30* students weekly with math objectives from levels of Kindergarten to Calculus, focusing on speed and accuracy.

SKILLS

Skills: Image Processing,Visualization, ParaView, Matlab, Python, Qt, Machine Learning, Deep Learning, Object-Oriented Design, Signal Processing, PyTorch, TensorFlow, C++, C, C#, Java, Kotlin, Javascript, NodeJS, SQL, Docker, Command Line, Human Computer Interaction, Digital Health Tools, UI/UX for Accessibility, User-centered design, Confluence, Jira, Salesforce CRM, Google Analytics, Buffer, Later, Emma

Languages: English (native), Arabic (intermediate), Urdu (native), Hindi (native)

ACTIVITIES & LEADERSHIP

Women in Computing
Vice President
Aug 2021 – Present

dnotes
co-developer
Hosted at:
https://devpost.com/software/dnotes
Dec 2021 – Feb 2022

Academic Decathlon
Captain and Chapter Founder
Aug 2017 – Jun 2020

University of Utah Hospital
Volunteer
Dec 2016 – May 2017

Girl Scouts of America
Member
Jan 2009 – Present

HOSA
Member
Aug 2016 – Jun 2020

Silicon Slopes Summit 2023
Volunteer
Sep 28, 2023

Further details can be found here