Service Statement

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Service Philosophy Throughout my professional career, I have consistently engaged in service activities that benefit my department, university, discipline, and broader community. My philosophy is to identify gaps and opportunities for growth, working to strengthen our academic programs, support students, and contribute meaningfully to the fields of Computer Science (CS) and High Performance Computing (HPC). Below, I describe my major service activities.

Service to the Department In my department, I contribute to the library committee, Master's program committee, award nomination committee, and currently chair the seminar coordination committee. My work focuses on enhancing the academic environment for both students and faculty. As a **Master's committee member**, I contributed to curriculum revisions, voted on new elective courses, and examined how leading institutions structure their AI programs to help develop a new AI track for our CS department. This work aligns our curriculum with industry and academic standards, ensuring that students are well-prepared for careers in emerging fields.

As the **seminar coordinator**, I organize seminars featuring scientists from national laboratories, in collaboration with the Sustainable Horizons Institute. These Department of Energy (DOE)-sponsored speakers introduce students and faculty to cutting-edge research and provide pathways to internship and job opportunities. Over the past two years, more than eight students have secured internships at national laboratories through these seminars. I am particularly proud of the role these seminars play in expanding students' awareness of diverse applications and career paths in CS.

By **engaging undergraduate students in research**, I build a bridge between our undergraduate and graduate programs, which is crucial for the department's growth. In my courses, I encourage students to pursue research by highlighting CS's impact in fields like healthcare and environmental science. This approach has inspired six undergraduate students at TXST to work with me, resulting in seven peer-reviewed publications with undergraduate student co-authors. This pipeline strengthens our department's research capacity and broadens diversity in STEM.

I serve the department by supervising **several Ph.D. students** and leading a research group, PER4ML, with six Ph.D. students, one M.S. student, and one undergraduate, five of whom are funded by my research grants. Two M.S. students have already graduated under my supervision. Moreover, I **serve on the thesis committee** of numerous other students in my department, supporting their academic growth at critical stages. My team collaborates with DOE scientists and industry partners, giving students exposure to applied research, internships, and career opportunities in HPC.

For **recruitment and outreach**, I actively participate in career and mentoring panels that promote our department. For instance, by organizing panels at venues such as the Tapia Conference and the Supercomputing Conference, I encourage students to consider the CS department at TXST for their graduate studies. These platforms allow me to connect with students from diverse backgrounds, and promote my department.

Service to the College At the college level, I focus on initiatives that support interdisciplinary research and enhance the College of Science and Engineering's resources. As CoSE's representative in the **Research Enhancement Program (REP)**, I review proposals, advocate for our resource needs, and facilitate communication between faculty and the committee, ensuring we secure resources critical to supporting research and student mentorship in different schools.

Service to the University At the university level, my service focuses on strengthening interdisciplinary research, fostering industry partnerships, and supporting student engagement. As a **University Leadership**

Assembly member, I contribute to strategic discussions on institutional priorities, such as budgeting and resource allocation, allowing me to advocate for initiatives that align with my research and teaching goals.

Additionally, I represented CoSE on the **Academic Computing Committee (ACC)**, where I invested over 50 hours guiding faculty through proposal development, reading proposals, providing feedback, and advocating for CoSE initiatives. My work in this committee helps secure resources that directly benefit faculty and students in CS and HPC.

In my **University Relations and Industry Engagement** efforts, I engage in industry-organized events to foster partnerships that benefit our faculty and students. For example, my invited talk at an AMD-sponsored HPC consortium led to a GPU donation for teaching, a 5-petaflop HPC machine, and $175K+ in research support for my team. AMD also produced a YouTube video featuring my research, which has garnered 2.7K views, providing positive publicity for TXST. Additionally, my invited talks at national and international forums increase TXST's visibility and build partnerships that culminate in research funding. For instance, since 2022, I have served as co-PI on over 10 grant proposals led by national laboratories, resulting in two of them funded with more than $3M in total funding, with over $600K allocated to TXST.

Service to the Discipline My professional service focuses on advancing research standards in HPC and CS, supporting early-career professionals, and fostering diverse representation. I am regularly invited to chair flagship **conferences and high-visibility workshops**, including SC'22-23, IPDPS, HPDC, and IEEE Cluster, where I develop agendas, build committees, coordinate reviews, and lead discussions. By inviting female academics and professionals from Minority-Serving Institutions (MSIs) to serve on panels and committees, I actively **support DEI** within these conferences, which strengthens inclusivity within the field.

As a **technical program committee member** at over 20 premier conferences (e.g., SC, ISC, ICPP), I shape research standards in HPC. Additionally, I review funding proposals for NSF and DOE, contributing to the advancement of research initiatives aligned with national priorities.

In my commitment to **open-source contributions**, I have developed six software packages, including a batch submission gateway for the NSF Network for Earthquake Engineering Simulation, which broadened HPC access for earthquake engineers. These contributions underscore my dedication to making HPC resources accessible to the broader scientific community.

Service to the Community My community service aligns closely with my commitment to **mentorship, outreach,** and expanding educational access in CS, particularly for underrepresented groups. I co-founded the Bangladeshi Women in Computer Science and Engineering (BWCSE), a mentoring platform connecting female students with guidance on scholarships, research, and career development. Over the past decade, BWCSE has helped hundreds of students in Bangladesh secure scholarships, such as the Google Anita Borg award, and pursue graduate studies, which fosters greater diversity in CS and HPC.

In "STEM Awareness" efforts, I have organized and spoken on panels such as "HPC for Undergraduates" at SC'18 and "Careers in HPC" at SC'20, which introduce students to careers in HPC and have served as recruitment tools for our program. These activities reflect my commitment to building a diverse talent pipeline in STEM.

Future Directions in Service Looking forward, I aim to continue building interdisciplinary partnerships and industry collaborations, particularly those that support student research and promote diversity, equity, and inclusion in HPC. These initiatives will help increase the visibility of the department and university, promote student and resource growth, and contribute to educational and research advancements in CS and HPC.