University of Pittsburgh | School of Computing and Information

Ph.D. Dissertation Defense

Doctor of Philosophy in Information Science

"**Data-Driven Science for Sustainable Development and Societal Good: Driving Data-Centric Policymaking**" by **Kuheli Sai**

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Abstract:

Data-Driven Science has potential in solving numerous practical and real-world problems that exist in the scope of United Nations (UN) Sustainable Development Goals (SDGs). In this dissertation, we have taken the opportunity to demonstrate applications of data science which are interconnected and interdependent from the lens of societal need and simultaneously contribute to further the goals listed in UN SDGs. Specifically, we contribute towards creating smart cities and community by provisioning meaningful and sustainability conscious next-generation network connectivity within cities in the United States that directly contribute towards UN SDGs 11 (sustainable cities and communities) and UN SDGs 13 (climate action). Here, our focus is on ensuring and improving digital inclusion, with an emphasis on its numerous dimensions, (1) online engagement, (2) digital literacy skills, and on (3) access. This regard, in this dissertation, we contribute by:

- Determining Public Online Engagement
- Understanding Digital Literacy Skills
- Providing Sustainability-aware Access

Our proposal is by design following numerous societal values: it is sustainability conscious, contributes to digital equity initiative, and helps create inclusive and equitable digital society. In addition, it is beneficial both for the local-level resource allocation, societal decision making, and at the global level policy development. In a nutshell, our contribution with this dissertation enables policymakers to drive data-centric policymaking process.