Report on Attendance at 59th Annual Conference on Information Science and Systems (CISS)

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The 59th Annual Conference on Information Science and Systems hosted by the Department of Electrical and Computer Engineering at Johns Hopkins University, gathered a distinguished international community of researchers, engineers, and academics. The conference provided a vibrant forum for the presentation of cutting-edge, unpublished research across diverse topics such as information theory, communications, coding, energy systems, machine learning, signal processing, and networked systems.

I presented my work entitled *"Bayesian Graph Signal Estimation in Nonlinear GSP Models with Multiple Topologies".* In this presentation, I introduced a Bayesian estimation framework that integrates Graph Signal Processing (GSP) techniques to address the challenges posed by dynamically changing network topologies. Traditional methods often assume fixed network structures, which limits their performance in real-world applications–especially in domains such as smart transportation systems. My framework, featuring parametric estimators including FIR and Chebyshev filters, provides a robust and computationally efficient solution for state estimation in environments where the network structure is time-varying.

The session attracted an engaged audience of experts in fields ranging from communications and control to machine learning and statistical inference. The detailed simulation studies on a dynamic IEEE 118-bus system model demonstrated the practicality of my approach in real-world networks including power systems and transportation. The feedback and questions received during and after the presentation reinforced the relevance of this approach, as attendees expressed interest in how similar methods could be adapted for their own contexts.

Attending the conference provided an invaluable opportunity to exchange ideas with experts in varying fields. The event's blend of formal sessions and informal networking allowed for technical discussions and the establishment of potential collaborations. Moreover, the experience affirmed the practical impact of my research by enhancing efficiency, safety, and environmental sustainability in modern transportation systems.

I highly recommend participation in the 59th Annual Conference on Information Science and Systems to anyone involved in networked systems from the prospective of signal processing and communication as well as machine learning. The conference not only serves as an excellent platform for sharing cutting-edge research but also for gaining insights into emerging methodologies that are reshaping how we approach dynamic network challenges.

Attending the conference was a highly valuable experience, both professionally and personally. It offered deep insights into the latest developments in signal processing, information theory, coding, optimization, communications and machine learning. I am excited about future opportunities to engage with and contribute to this dynamic and forward-thinking research community.

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