



UNC GREENSBORO

Department of Computer Science

Department of Computer Science Colloquium Series



Jian Pei, Ph.D.

Arthur S. Pearce Distinguished Professor

Chair of the Department of Computer Science at Duke University

Fellow of the Royal Society of Canada (FRSC), the Canadian Academy of Engineering (CAE), ACM, and IEEE.

Date: Monday, Sep 22nd, 2025

Time: 10am-11am

Location: Stone Building 204

Abstract:

As data and AI become central to innovation across industries, unlocking their full value remains a grand challenge. **This talk explores the emerging paradigm of data and AI markets as a transformative approach to address the technical, economic, and societal complexities of data sharing, model integration, and collaborative analytics.** Unlike ad hoc or siloed exchanges, data and AI markets provide scalable, systematic mechanisms for valuation, privacy preservation, trustworthiness, and incentivization. Through real-world examples from healthcare, sustainability, and federated learning, the talk illustrates how data ecosystems can evolve from isolated assets to dynamic, service-oriented platforms. Drawing from recent advances in Shapley value computation, game-theoretic valuation, and privacy-aware mechanisms, it highlights novel methods for quantifying contribution and ensuring fairness. It also presents system-level innovations like Dealer, which enable trustworthy, privacy-preserving marketplaces. The vision is clear: by co-designing infrastructure, algorithms, and economic models, we can build data and AI markets that are equitable, efficient, and impactful. This talk shares both foundational ideas and cutting-edge developments, offering a data science perspective on how to operationalize cooperation in the age of AI.

Biography:

Dr. Jian Pei is the **Arthur S. Pearce Distinguished Professor** and **Chair of the Department of Computer Science, Trinity College of Arts and Sciences, at Duke University**, holding additional primary appointments in Departments of Biostatistics & Bioinformatics (School of Medicine) and Electrical and Computer Engineering (Pratt School of Engineering). Dr. Pei is acclaimed for developing influential data mining algorithms such as FP-growth and PrefixSpan, widely adopted in both academia and industry. His interdisciplinary work spans applications in healthcare, bioinformatics, social networks, and equitable AI, aiming to develop fair and transparent data science solutions for societal benefit. With **over 300 publications** and about **140,000 citations**, he **ranks among the most cited authors** in his field. His accolades include the **2017 ACM SIGKDD Innovation Award** and the **2015 SIGKDD Service Award**, recognizing his technical excellence and leadership in the data mining community. Dr. Pei is a **Fellow of the ACM, the IEEE, the Royal Society of Canada, and the Canadian Academy of Engineering**. He is a **former chair of ACM SIGKDD**, the **editor-in-chief of ACM Transactions of Knowledge Discovery from Data**, and a **former editor-in-chief of IEEE Transactions of Knowledge and Data Engineering**.