



NUS
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Department of Statistics
and Data Science
Faculty of Science

LECTURE SERIES—TRENDS IN STATISTICS

Statistical Learning for High-dimensional Tensor Data

Abstract. The analysis of tensor data has become an active research topic in statistics and data science recently. Many high order datasets arising from a wide range of modern applications, such as genomics, material science, and neuroimaging analysis, requires modeling with high-dimensional tensors. In addition, tensor methods provide unique perspectives and solutions to many high-dimensional problems where the observations are not necessarily tensors. High-dimensional tensor problems generally possess distinct characteristics that pose unprecedented challenges; there is a clear need to develop novel methods, algorithms, and theory for them. In this talk, we discuss some recent advances in high-dimensional tensor data analysis through several fundamental topics and their applications in microscopy imaging and neuroimaging. We will also illustrate how we develop new methods and theories that exploit information from high-dimensional tensor data based on the modern theory of computation, non-convex optimization, applied linear algebra, and high-dimensional statistics.

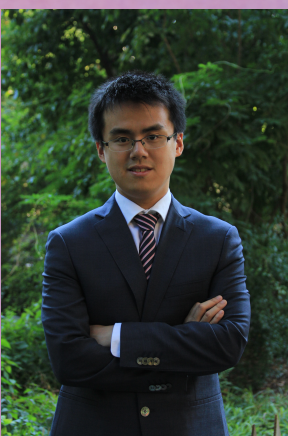
Biography. Anru Zhang is the Eugene Anson Stead, Jr. M.D. Associate Professor in the Department of Biostatistics & Bioinformatics and an associate professor in the Departments of Computer Science, Mathematics, and Statistical Science at Duke University. He was an assistant professor of statistics at the University of Wisconsin-Madison in 2015-2021. He obtained his bachelor's degree from Peking University in 2010 and his Ph.D. from the University of Pennsylvania in 2015. His work focuses on high-dimensional statistical inference, non-convex optimization, statistical tensor analysis, computational complexity, and applications in genomics, microbiome, electronic health records, and computational imaging. He received the IMS Tweedie Award (2022), ASA Gottfried E. Noether Junior Award (2021), Bernoulli Society New Researcher Award (2021), ICSA Outstanding Young Researcher Award (2021), and NSF CAREER Award (2020).

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30 March 2022, 10–11am (Singapore)



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Duke University