International Symposium on Theories, Methodologies and Applications for Large Complex Data

December 4-6, 2024

Venue:

Conference Room 202, Tsukuba International Congress Center
2-20-3 Takezono, Tsukuba, Ibaraki 305-0032, Japan

Organizers:

Makoto Aoshima	(University of Tsukuba)
Kazuyoshi Yata	(University of Tsukuba)
Aki Ishii	(Tokyo University of Science)
Kento Egashira	(Tokyo University of Science)

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"Innovative developments of theories and methodologies for large complex data"
(Principal Investigator: Makoto Aoshima)

Grant-in-Aid for Challenging Research (Exploratory) 22K19769 (Project Period: 2022-2024)
"Developments of statistical compression technology for massive data having tensor structures"
(Principal Investigator: Makoto Aoshima)

Program (UTC+9)

December 4 (Wednesday)

13:40∼13:50 Opening

13:50∼14:30 Aki Ishii[*,a], Yumu Iwana[b], Kazuyoshi Yata[c] and Makoto Aoshima[c]
[a](Department of Information Sciences, Tokyo University of Science)
[b](Graduate School of Science and Technology, University of Tsukuba)
[c](Institute of Mathematics, University of Tsukuba)

Statistical inference on high-dimensional covariance structures under the SSE models

14:40∼15:20 Yoshikazu Terada
(Graduate School of Engineering Science, Osaka University)

Statistical properties of matrix decomposition factor analysis

15:30∼16:10 Tsutomu T. Takeuchi
(Division of Particle and Astrophysical Science, Nagoya University)

High-dimensional statistics in astrophysics and its perspective

16:30∼17:10 Shao-Hsuan Wang

(Graduate Institute of Statistics, National Central University)

High-dimensional inference on a cross data matrix-based method

17:20∼18:00 Yuan-Tsung Chang[*,a], Nobuo Shinozaki[b] and William E. Strawderman[c]

[a](The Institute of Statistical Mathematics)

[b](Faculty of Science and Technology, Keio University)

[c](Department of Statistics, Rutgers University)

On estimation of a matrix mean under matrix loss

December 5 (Thursday)

9:00∼11:00 **Young Researchers Session**

1. Tetsuya Umino (Graduate School of Science and Technology, University of Tsukuba)
   Automatic sparse estimation of high-dimensional cross-covariance matrix
2. Dongsun Yoon (Department of Statistics, Seoul National University)
   Augmented estimation of principal component subspace in high dimensions
3. Giheon Seong (Department of Statistics, Seoul National University)
   James-Stein estimator of spiked leading eigenvector of high-dimensional covariance matrix
4. Yongjae Kim (Department of Statistics, Seoul National University)
   General measures of attribution disclosure risk for gauging privacy of synthetic data
5. Guan Xin (Graduate School of Engineering Science, Osaka University)
   Regularized k-POD clustering for high-dimensional missing data

11:10∼11:50 Masaaki Imaizumi

(Komaba Institute for Science, University of Tokyo / RIKEN AIP)

Non-sparse high-dimensional statistics: structured model, neural network, and universality

11:50∼13:40 Lunch

13:40∼18:00 **Special Invited and Keynote Sessions**

19:00∼21:00 Dinner

December 6 (Friday)

9:00∼9:40 Shogo Nakakita

(Komaba Institute for Science, University of Tokyo)

On dimension-free concentration of logistic regression

9:50∼10:30 Sangil Han

(Institute for Data Innovation in Science, Seoul National University)

Subspace recovery in winsorized PCA

10:45∼11:25 Yuta Koike

(Graduate School of Mathematical Sciences, University of Tokyo)

High-dimensional bootstrap and asymptotic expansion

11:35∼12:15 Takahiro Nishiyama[*,a], Masashi Hyodo[b] and Shoichi Narita[c]

[a](Department of Business Administration, Senshu University)

[b](Faculty of Economics, Kanagawa University)

[c](Graduate School of Economics, Kanagawa University)

On a test for assessing vector correlation for latent factor models in high-dimensional settings

12:25∼13:05 Yohji Akama

(Mathematical Institute, Tohoku University)

Asymptotic locations of bounded and unbounded eigenvalues of sample correlation matrices of certain factor models – application to a components retention rule

13:05∼13:10 Closing

(∗ Speaker)

Special Invited and Keynote Sessions

December 5 (Thursday)

Special Invited Session

13:40∼14:30 **Difference between large statistical model and medium statistical model**

Speaker: Shurong Zheng
(School of Mathematics and Statistics, Northeast Normal University)

Discussion Leader: Kento Egashira (Department of Information Sciences, Tokyo University of Science)

14:40∼15:30 **Principal component analysis for zero-inflated compositional data**

Speaker: Sungkyu Jung
(Institute for Data Innovation in Science, Seoul National University)

Discussion Leader: Kazuyoshi Yata (Institute of Mathematics, University of Tsukuba)

Keynote Session

15:50∼16:50 **A generalized mean approach for distributed-PCA**

Speaker: Su-Yun Huang
(Institute of Statistical Science, Academia Sinica)

Discussion Leader: Yuan-Tsung Chang (The Institute of Statistical Mathematics)

17:00∼18:00 **Alignment and matching tests for high-dimensional tensor signals via tensor contraction**

Speaker: Jianfeng Yao
(School of Data Science, Chinese University of Hong Kong (Shenzhen))

Discussion Leader: Yuta Koike (Graduate School of Mathematical Sciences, University of Tokyo)