

# Advanced Methodologies for Bayesian Networks

Nov. 16 – Nov. 18., 2015 Yokohama

Advanced Program (Oct 29, 2015)

Day 1 (Nov. 16, Monday)

10:00–10:10

Opening, Joe Suzuki & Maomi Ueno

((Invited Talk I)) chaired by Maomi Ueno

10:10–11:10

Changhe Yuan, "Advanced Heuristic Search Methods for Learning Optimal Bayesian Network Structures"

((Finding an optimal Bayesian network structure from data)) chaired by Brandon Malone and Changhe Yuan

11:10–11:35

Joe Suzuki, "Efficiently Learning Bayesian Network Structures based on the B&B Strategy: A Theoretical Analysis"

11:35–12:00

Kazuki Natori, Masaki Uto, Yu Nishiyama, Shuichi Kawano and Maomi Ueno, "Constraint-based learning Bayesian networks using Bayes factor"

12:00–12:25

Zhi-Gao Guo, Xiao-Guang Gao, Ruo-Hai Di and Yu Yang, "Learning Bayesian Network Parameters from Small Data Set: A Spatially Maximum a Posterior Method"

12:25–13:45 (lunch)

13:45–14:10

Niklas Jahnsson, Brandon Malone and Petri Myllymaki, "Hashing-based Hybrid Duplicate Detection for Bayesian Network Structure Learning"

14:10–14:35

Ueno Maomi, "What is the main factor of learning accuracy for Bayesian networks score functions?"

14:35–15:00

Joe Suzuki and Shunsuke Iwamoto, "A Shortest Path Perspective of Bayesian Network Structure Learning: Finding Conditional Independence Relations"

((Application)) chaired by Russell G. Almond

15:00–15:25

Yi Zuo, Katsutoshi Yada and Eisuke Kita, "A Bayesian Network Approach for Predicting Purchase Behavior via Direct Observation of In-store Behavior"

15:25–15:50

Alessio Benavoli and Cassio P. de Campos, "Statistical Tests for Joint Analysis of Performance Measures"

15:50–16:10 (break)

16:10–16:35

Eiichi Sakurai, "Customer Behavior Modeling by Probabilistic Latent Semantic Analysis and Bayesian Networks"

16:35–17:00

Yun Zhou, John Howroyd, Sebastian Danicic and Mark Bishop, "Extending Naive Bayes Classifier with Hierarchy Feature Level Information for Record Linkage"

((Invited Talk II)) chaired by Joe Suzuki

17:00–18:00

Brandon Malone, "Empirical Behavior of Bayesian Network Structure Learning Algorithms"

18:00– (welcome party)

Day 2 (Nov. 17, Tuesday)

((Invited Talk III)) chaired by Maomi Ueno

9:00–10:00

Aapo Hyvarinen, "An Entropic Approach to Causal Discovery in Non-Gaussian and Non-Linear Models"

((Asymptotic Analyses Approach)) chaired by Takashi Isozaki

10:00–10:25

Yuan Zou and Teemu Roos, "On Model Selection, Bayesian Networks, and the Fisher Information Integral"

10:25–10:50

Keisuke Yamazaki, "On Estimation Accuracy of Hidden Nodes in Two-Layered Bayesian

Networks”

10:50–11:10 (break)

((Experimental Approach)) chaired by Takashi Isozaki

11:10–11:35

Kei Hirose and Hironori Fujisawa

“Robust Sparse Inverse Covariance Estimation”

11:35–12:00

Jingguo Dai and Jia Ren, “Unsupervised Evolutionary Algorithm for Dynamic Bayesian Network Structure Learning”

((Discrete & Logic)) chaired by Masakazu Ishihata

12:00–12:25

Masakazu Ishihata, “Propositionalizing Bayesian Networks for Efficient Parameter Learning”

12:25–12:50

Chao Li and Maomi Ueno, “A Fast Clique Maintenance algorithm for Optimal Triangulation of Bayesian Networks”

12:50–14:10 (lunch)

14:10–14:35

Shan Gao and Shin-Ichi Minato, “Factorization of ZDDs for Representing Bayesian Networks Based on d-separations”

((Causality)) Chaired by Shohei Shimizu and Aapo Hyvarinen

14:35–15:00

Karthika Mohan and Judea Pearl, “Missing Data From A Causal Perspective”

15:00–15:25

Kosuke Morikawa and Yutaka Kano, “Doubly Robust Estimation under Nonignorable Nonresponse”

15:25–15:50

Takashi Isozaki and Manabu Kuroki, “Learning Maximal Ancestral Graphs with Robustness for Faithfulness Violations”

15:50–16:15

Patrick Blobaum, Shohei Shimizu and Takashi Washio, “Discriminative and Generative models in Causal and Anticausal settings”

16:15–16:35 (break)

16:35–17:00

Hei Chan, "Causal Identification of Linear SEMs"

((Invited Talk IV)) chaired by Maomi Ueno

17:00–18:00

Shohei Shimizu, "A non-Gaussian Approach for Causal Discovery in the Presence of Hidden Common Causes"

Day 3 (Nov. 18, Wednesday)

((Invited Talk V)) chaired by Joe Suzuki

9:00–10:00

Cassio P. de Campos, "Learning Bayesian Networks with Biomedical Applications"

((Genome analysis based on Bayesian networks)) chaired by Seiya Imoto

10:00–10:25

Joe Suzuki, "Forest Learning based on the Chow-Liu Algorithm and its Application to Genome Differential Analysis: A Novel Mutual Information Estimation"

10:25–10:50

Reiichiro Nakamichi, Hirohisa Kishino and Shuichi Kitada, "Entropy-based maximal connected core network"

10:50–11:10 (break)

11:10–11:35

Yoshinori Tamada, "Cancer Genome Research with Gene Network Analysis using Bayesian Networks"

11:35–11:50

Yoichi Takenaka, "Identification of the state-change-time-point of gene regulations from time-course experiments"

((Invited Talk VI)) chaired by Maomi Ueno

12:00–13:00

Russell G. Almond, "Tips and Tricks for Building Bayesian Networks for Scoring Game-based Assessments"

13:00–13:10

Closing, Joe Suzuki & Maomi Ueno