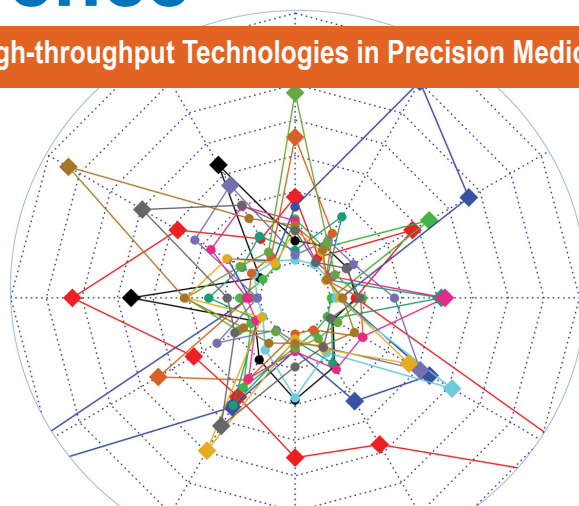


iBRIGHT 2019 Conference

Integrative Biostatistics Research for Imaging, Genomics, & High-throughput Technologies in Precision Medicine

Nov. 11-13 | Houston Texas

Cancer Biostatistics, Clinical Trials,
Statistical Genetics, and
Integrative Biostatistics Methods
for High-throughput Omic Technologies
(including Microbiomics)



AGENDA

Monday, November 11

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|------------------|--|
| 7:30 – 8:30 AM | Registration, Continental breakfast
Hallway |
| 8:30 – 8:40 AM | Introduction – Kim-Anh Do, Ph.D.
Professor and Chair, Department of Biostatistics
The University of Texas MD Anderson Cancer Center |
| 8:40 – 8:45 AM | Welcome remarks – Giulio Draetta, MD, Ph.D.
SrVP, Chief Scientific Officer
MD Anderson Cancer Center |
| 8:45 – 9:50 AM | Plenary speaker – Nilanjan Chatterjee, Ph.D.
Bloomberg Distinguished Professor of Biostatistics and Medicine
Johns Hopkins University

<i>Polygenic Modeling of Complex Traits to Inform Biology, Causality and Prediction</i> |
| 9:50 – 10:15 AM | Break, Refreshments available (coffee, tea, water)
Hallway |
| 10:15 – 11:45 AM | Parallel Sessions 1 and 2

Session 1: Network Inference for Complex Biological Data
Organizers: Christine Peterson, Ph.D. (MD Anderson Cancer Center) and Min Jin Ha, Ph.D. (MD Anderson Cancer Center)

Adrian Dobra, Ph.D. (University of Washington)
<i>Modeling Association in Microbial Communities with Clique Loglinear Models</i>

Marina Vannucci, Ph.D. (Rice University)
<i>Spike-and-Slab Priors for Multiple Graphs Estimation</i>

Suprateek Kunda, Ph.D. (Emory University)
<i>Estimating Dynamic Brain Functional Networks Using Multi-subject fMRI Data</i> |

AGENDA

Session 2: Single Cell Technology

Organizers: Christina Kendzierski, Ph.D. (University of Wisconsin, Madison) and Jeffrey Morris, Ph.D. (MD Anderson Cancer Center)

Nick Navin, Ph.D. (MD Anderson Cancer Center)
Breast Cancer Evolution – Insights from Single Cell Genomics

Mingyao Li, Ph.D. (University of Pennsylvania)
Gene Expression Imputation and Clustering with Batch Effect Removal in Single-cell RNA-seq Analysis by Deep Learning

Davide Risso, Ph.D. (University of Padova)
Efficient Clustering of Large Single-cell Datasets

11:45 AM – 12:45 PM

Lunch break

On your own; see list of campus lunch locations in iBRIGHT program.

12:45 – 2:45 PM

Parallel Sessions 3 and 4

Session 3: Triumphs and Challenges in the Design and Conduct of Novel Adaptive Oncology Trials

Organizer: Jack Lee, Ph.D. (MD Anderson Cancer Center)

Max Parmar, Ph.D. (University College, London)
Lessons Learned from Multi-arm, Multi-stage Trials – The STAMPEDE Trial and Beyond

Mary Redman, Ph.D. (Fred Hutchinson Cancer Research Center)
The Lung-MAP Master Protocol: Lessons Learned

Susan Halabi, Ph.D. (Duke University)
Beyond the Alliance Trials: Opportunities and Challenges in the Design and Implementation of Biomarker Trials

Scott Berry, Ph.D. (Berry Consultants)
Lessons Learned from Bayesian Adaptive Trials – The I-SPY2 Trial and Beyond

Session 4: Pharmacogenomics: Current Challenges and Opportunities

Organizers: Jeffrey Morris, Ph.D. (MD Anderson Cancer Center) and Veera Baladandayuthapani, Ph.D. (University of Michigan)

Amber Johnson, Ph.D. (MD Anderson Cancer Center)
Real-Time Implementation of Precision Oncology Decision Support Demonstrates Improvements in Clinical Trial Matching and Overall Survival

Brian Athey, Ph.D. (University of Michigan)
The Next Generation of Pharmacogenomic Science is Now

Anil Korkut, Ph.D. (MD Anderson Cancer Center)
Discovery of Anticancer Drug Combinations Through Quantitative Pharmacology

Veera Baladandayuthapani, Ph.D. (University of Michigan)
A Bayesian Precision Medicine Framework for Calibrating Individualized Therapeutic Indices in Cancer

2:45 – 3:15 PM

Break, Refreshments available (coffee, tea, water, fresh fruit, snack bars)
Hallway

AGENDA

3:15 – 5:15 PM

Parallel Sessions 5 and 6

Session 5: Clinical Trial Designs Using Biomarkers, Pharmacokinetics and/or Pharmacodynamics

Organizer: Yisheng Li, Ph.D. (MD Anderson Cancer Center); Peter Mueller, Ph.D. (The University of Texas at Austin)

Thomas Jaki, Ph.D. (Lancaster University)
Optimizing Confirmatory Clinical Trials with Master Protocols

Satoshi Morita, Ph.D. (Kyoto University)
Bayesian Population Finding with Biomarkers in a Randomized Clinical Trial

Moreno Ursino, Ph.D. (Inserm, Centre de Recherche des Cordeliers)
PK/PD Information in Early Phase Dose-finding Trials in Small Populations

Peter Mueller, Ph.D. (The University of Texas at Austin)
A Nonparametric Bayesian Basket Trial Design

Session 6: Cancer Biostatistics and Health Services Research

Organizers: Liang Li, Ph.D. (MD Anderson Cancer Center) and Yu Shen, Ph.D. (MD Anderson Cancer Center)

Ruth Etzioni, Ph.D. (Fred Hutchinson Cancer Research Center)
Translating New Biomarkers for Cancer Risk and Early Detection Technologies into Outcomes that Matter

Rebecca Hubbard, Ph.D. (University of Pennsylvania)
Bias Reduction Approaches for Cancer Outcomes Research Conducted Using Electronic Health Records

James O'Malley, Ph.D. (The Dartmouth Institute)
Using Social Network Analysis to Estimate the Effect of Network Position and Peer Effects with Application to the Intensity of End-of-life Care in Cancer

Tor D. Tosteson, Sc.D. (Dartmouth College)
Terminal Trend Models for Censored Quality-of-life Measures, Cost and Survival Data with Applications in Cancer Survivorship and Osteoporosis

5:15 – 5:45 PM

Break, Refreshments available (coffee, tea, water)
Hallway

5:45 – 9:00 PM

1 of 2 – Speed Poster Presentations, Poster Sessions
Includes mixer and heavy hors d'oeuvres

Tuesday, November 12

8:00 – 8:30 AM

Registration, Continental breakfast
Hallway

8:30 – 9:30 AM

Plenary speaker: Hongzhe Li, Ph.D.
Professor of Biostatistics in Biostatistics and Epidemiology
University of Pennsylvania

Shotgun Metagenomics, Functional Microbiome and Its Applications in Cancer and Immunology

AGENDA

9:30 – 9:45 AM **Break, Refreshments available (coffee, tea, water)**
Hallway

9:45 – 11:45 AM **Parallel Sessions 7 and 8**

Session 7: Integrative Microbiome with Genomics

Organizers: Kim-Anh Do, Ph.D. (MD Anderson Cancer Center) and Christina Kendzierski, Ph.D. (University of Wisconsin, Madison)

Robert Jenq, MD (MD Anderson Cancer Center)
Gut Bacteria and the Intestinal Barrier in Cancer Therapy

Christine Peterson, Ph.D. (MD Anderson Cancer Center)
Bayesian Variable Selection for Microbiome Data

Michael Wu, Ph.D. (Fred Hutchinson Cancer Research Center)
Integrative Analysis of Microbiome and Other Genomic Data Types

Zhengzheng Tang, Ph.D. (University of Wisconsin, Madison)
Statistical Methods for Analysis of Microbiome Data

Session 8: Practical Bayesian Precision Medicine: Design and Analysis

Organizer: Peter Thall, Ph.D. (MD Anderson Cancer Center)

Thomas Murray, Ph.D. (University of Minnesota)
Utility-based Design for Randomized Trials with Ordinal Outcomes and Prognostic Subgroups: Application to Pre-surgery Nutritional Prehabilitation in Esophageal Cancer Patients

Juhee Lee, Ph.D. (University of California, Santa Cruz)
Optimizing Natural Killer Cell Doses for Heterogeneous Cancer Patients Based on Multiple Event Times

Andrew Chapple, Ph.D. (Louisiana State University)
Subgroup-specific Dose Optimization in Phase I Trials Based on Time to Toxicity with Adaptive Subgroup Combination

Yanxun Xu, Ph.D. (Johns Hopkins University)
Bayesian Nonparametric Survival Regression for Optimizing Precision Dosing of Intravenous Busulfan in Allogeneic Stem Cell Transplantation

11:45 AM – 12:45 PM **Lunch break**
On your own; see list of campus lunch locations in iBRIGHT program.

12:45 – 1:45 PM **Plenary speaker: Suchi Saria, Ph.D.**
Assistant Professor of Machine Learning and Healthcare
Johns Hopkins University

Augmenting Clinical Intelligence with Machine Intelligence

1:45 – 2:00 PM **Break, Refreshments available (coffee, tea, water, fresh fruit, snack bars)**
Hallway

AGENDA

2:00 – 4:00 PM

Parallel Sessions 9 and 10

Session 9: Novel Adaptive Designs and Statistical Methods to Accelerate Development of Immunology

Organizer: Ying Yuan, Ph.D. (MD Anderson Cancer Center)

Sumithra Mandrekar, Ph.D. (Mayo Clinic)

Statistical Considerations for Immunotherapy Trials in Cancer

Suyu Liu, Ph.D. (MD Anderson Cancer Center)

A Bayesian Phase I-II Design for Immunotherapy Trials

Ying Lu, Ph.D. (Stanford University)

Sequential Interim Analysis for Immunotherapy Oncology Trials with Restricted Mean Survival Time Endpoint

Robert Beckman, MD (Georgetown University)

Design Concept for a Confirmatory Basket Trial

Session 10: Integrative High-throughput Omics

Organizers: Jeffrey Morris, Ph.D. (MD Anderson Cancer Center) and Veera Baladandayuthapani, Ph.D. (University of Michigan)

Jeffrey Morris, Ph.D. (MD Anderson Cancer Center)

Top-down Integrative Genomics for Colon Cancer Precision Therapeutics

George Tseng, Sc.D. (University of Pittsburgh)

Precision Medicine via Robust Nonparametric Machine Learning and Outcome-guided Clustering with Multi-omics Data Integration

Wei Sun, Ph.D. (Fred Hutchinson Cancer Research Center)

Cell Type-specific Differential Expression and eQTLs

Eric Lock, Ph.D. (University of Minnesota)

Integrative Factorization of Bidimensionally Linked Matrices

4:00 – 4:15 PM

Break, Refreshments available (coffee, tea, water)

Hallway

4:15 – 5:45 PM

Parallel Sessions 11 and 12

Session 11: Integrative Genomics and Metabolomics

Organizers: Peng Wei, Ph.D. (MD Anderson Cancer Center) and Christina Kendzierski, Ph.D. (University of Wisconsin, Madison)

Bing Yu, Ph.D. (UT Health)

Genetics, Metabolomics and Cardiovascular Disease

Qiongshi Lu, Ph.D. (University of Wisconsin, Madison)

IPost-GWAS Data Integration Identifies Novel Risk Factors for Alzheimer's Disease

Guanghua Xiao, Ph.D. (UT Southwestern Medical Center)

Deep Learning and Spatial Modeling in Pathology Image Analysis

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Session 12: Statistical Genetics

Organizers: Xihong Lin, Ph.D. (Harvard School of Public Health) and Sanjay Shete, Ph.D. (MD Anderson Cancer Center)

Chris Amos, Ph.D. (Baylor College of Medicine)
Machine Learning Methods with Applications to Genetic Analysis

Paul Scheet, Ph.D. (MD Anderson Cancer Center)
Statistical Genomics of Clonal Mosaicism

Jaya Satagopan, Ph.D. (Memorial Sloan Kettering Cancer Center)
Measuring Inter-individual Variation in Risk due to Genetic and Environmental Factors – Applications in Epidemiology of Nevi

5:45 – 6:00 PM **Break, Refreshments available (coffee, tea, water)**
Hallway

6:00 – 9:00 PM **2 of 2 - Speed Poster Presentations, Poster Sessions**
Includes mixer and Mediterranean buffet

Wednesday, November 13

8:00 – 8:30 AM **Registration, Continental breakfast**
Hallway

8:30 – 9:30 AM **Plenary speaker: David Balding, Ph.D.**
Professor of Statistical Genomics
University of Melbourne

Genome-wide Models for Heritability and Prediction

9:30 – 9:45 AM **Break, Refreshments available (coffee, tea, water)**
Hallway

9:45 – 11:15 AM **Parallel Sessions 13**

Session 13: Electronic Health Records (EHR) Research

Organizers: Liang Li, Ph.D. (MD Anderson Cancer Center) and Sanjay Shete, Ph.D. (MD Anderson Cancer Center)

Qi Long, Ph.D. (University of Pennsylvania)
Distributed learning from multiple EHR databases for predicting medical events

Haoda Fu, Ph.D. (Eli Lilly)
Individualized Treatment Recommendation (ITR) for Survival Outcomes

Jiajie Zhang, Ph.D. (UT Health)
The AI Revolution is Coming to Medicine

11:15 AM **Closing Remarks – Kim-Anh Do, Ph.D.**