The Western North American
Region of The International Biometric Society

2023 Annual Meeting

WNAR / IMS

June 18 – 21, 2023

Program & Schedule

Hilton Anchorage
Anchorage, AK

WNAR/IMS 2023

Conference Schedule

Please see the Anchorage Hilton map on the last page of the program book.

WiFi Network: Coming soon
Password: Coming soon

Sunday, June 18, 2023

	Dillingham / Katma Room	King Salmon / Illiama Room	Aspen/ Spruce room
1:00 - 3:00	Short Course 1	Short Course 2	
3:00 - 3:15	Break		
3:15 - 5:00	Short Course 1	Short Course 2	Regional Committee Meeting
5:00-6:00			Student Committee Meeting
6:00-8:00	Welcome Reception and 75th WNAR anniversary celebration (Top of the World and Chart Room)		

WNAR = WNAR Invited Session

IMS = Institute of Mathematical Statistics

ST = Speed Talk Session

C = Contributed Session

SP = Student Paper Session

Monday, June 19, 2023

	Katmai Room	Dillingham Room	King Salmon Room	Illiama Room	Aspen Room	Spruce Room	Lupine Room	Firewood Room
8:30 - 10:15	WNAR 1	WNAR 2	WNAR 3	WNAR 4	WNAR 5	SP 1	ST 1	
10:15 - 10:30	Coffee Break (poster set up)							
10:30 - 12:15	WNAR 6	WNAR 7	WNAR 8	WNAR 9	WNAR 10	SP 2	ST 2	IMS 1
12:25 - 2:05	Poster Session Top of the World and Chart (odd posters 12:25-1:15, even posters 1:15-2:05) / Lunch on own							
2:15 - 4:00	WNAR 11	WNAR 12	WNAR 13	WNAR 14	IMS 2	SP 3	WNAR 15	
4:00-4:15	Coffee Break							
4:15-5:30	Presidential Invited Address (Alaska Ballroom)							
5:30-8:00		Student Social and Dinner (off site)						

*video/zoom (≥ one presentation)

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Tuesday, June 20, 2023

	Katmai Room	Dillingham Room	King Salmon Room	Illiama Room	Aspen Room	Spruce Room	Firewood Room	Lupine Room
8:30 - 10:15	WNAR 16	WNAR 17	WNAR 18	WNAR 19	IMS 3	SP 4	WNAR 20	
10:15 - 10:30	Coffee Break on 1st Floor and Mezzanine Level							
10:30 - 12:15	WNAR 21	WNAR 22	WNAR 23	WNAR 24	IMS 4	SP 5	WNAR 25	IMS 5
12:15 - 1:45	Lunch on own Regional Advisory Board Lunch (Chart Room) New Investigator's Lunch (Top of the World Room)							
1:45 - 3:30	C 1*	C 2	C 3	WNAR 26	IMS 6	WNAR 27	WNAR 28	
3:30-3:45	Coffee Break							
3:45 - 5:30	WNAR 29	WNAR 30	WNAR 31	WNAR 32	IMS 7	WNAR 33	WNAR 34	Student Comm. Meeting
6:00-9:00	Conference Banquet (Alaska Ballroom)							

*video/zoom (≥ one presentation)

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SP = Student Paper Session

Wednesday, June 21, 2023

	Katmai Room	Dillingham Room	King Salmon Room	Illiama Room	Aspen Room	Spruce Room	Lupine Room	Firewood Room
8:30 - 10:15	WNAR 35	WNAR 36	WNAR 37	WNAR 38	WNAR 39			
10:15 - 10:30	Coffee Break							
10:30 - 12:15	WNAR 40	WNAR 41*	WNAR 42	WNAR 43	WNAR 44			

*video/zoom (≥ one presentation)

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President's Welcome

June 2023

Welcome to the 2023 WNAR/IMS Conference in Anchorage, Alaska!

Coming Soon…

Elizabeth Juarez-Colunga
2023 WNAR President

Officers of the Western North American Region of the International Biometric Society

Elected Officers and Representatives (Regional Committee)

Office	Year(s)	Officer	Affiliation
President	2023	Elizabeth Juarez-Colunga	University of Colorado Anschutz Medical Campus
Secretary/Correspondent	2022-25	Jessica Minnier	Oregon Health & Science University
Treasurer	2020-26	Brandie Wagner	University of Colorado Anschutz Medical Campus
Program Coordinator	2022-23	Lingling An	University of Arizona
President Elect	2023	Megan Othus	Fred Hutchinson Cancer Research Center
Past President	2023	Gary Chan	University of Washington

Representatives At-Large

2023-25	Natalie Gasca	California Council on Science and Technology
2023-25	Yu-Ru Su	Kaiser Permanente Washington Health Research Institute
2022-24	Ting Ye	University of Washington
2022-24	Yiliang Zhu	University of New Mexico
2021-23	Charlotte Gard	New Mexico State University
2021-23	Julia Palacios	Stanford University

IBS Council Representatives

2021-25	Megan Othus	Fred Hutchinson Cancer Research Center
2021-25	Lang Wu	University of British Columbia
2019-23	Elizabeth Jaurez-Colunga	University of Colorado Anschutz Medical Campus

Appointments

RAB – Regional Advisory Board

Years	Members	Affiliation
2022-2024	Neby Bekele	Exelixis
	Chiung-Yu Huang	University of California, San Francisco

	Jennifer Nelson	Kaiser Permanente Washington Health Research Institute
2021-2023	Ruth Joy	University of British Columbia
	Linglong Kong	University of Alberta
	Leslie New	Ursinus College

Student Committee

Members	Role
Jennifer McNichol	Co-Chair
Nikola Surjanovic	Co-Chair
Riley Lamont	Co-Chair Elect
Sakib Salam	Webmaster
Suni Godbole	Member
Yu-Ru Su, PhD	WNAR Journal Club Advisor
Katen A. Kopciuk, PhD	Mentor

Justice, Equity, Diversity, and Inclusion (JEDI) Committee

Role	Year(s)	Member	Affiliation
Founding Chair	2021-23	Nairanjana (Jan) Dasgupta	Washington State University
Founding Member	2021-23	Sonia Jain	University of California, San Diego
Founding Member	2021-23	Brian Williamson	Kaiser Permanente Washington Research Institute
Founding Member	2021-23	Maricela Cruz	University of Washington
Founding Member	2021-23	Audrey Hendricks	University of Colorado Anschutz Medical Campus
Member	2022-24	Natalie Gasca	California Council on Science and Technology

WNAR Conference Organizers

Local Organizer	Jiaqi Huang	Alaska Department of Fish and Game
Program co-Chair	Audrey Hendricks	University of Colorado Anschutz Medical Campus
Program co-Chair	Wen Zhou	Colorado State University
IMS Program Chair	Hua Zhou	University of California, Los Angeles

Committee Member	Jingshen Wang	University of California, Berkeley
Committee Member	Mengli Xiao	University of Colorado Anschutz Medical Campus
Committee Member	Bo Huang	Pfizer
Committee Member	Zhixin Lun	University of Colorado Anschutz Medical Campus
Committee Member	Jing Ma	Fred Hutchinson Cancer Center

2023 WNAR Student Paper Competition Committee

Charlotte Gard (Chair)	New Mexico State University
Fang Chen	SAS
Shuai Chen	University of California, Davis
Chad He	Fred Hutchinson Cancer Center
Alexander Kaizer	Colorado School of Public Health
Eric Kawaguchi	University of Southern California
Kayleigh Keller	Colorado State University
Jane Lange	Oregon Health & Science University
Hong Li	University of California, Davis
Yu-Ru Su	Kaiser Permanente Washington Health Research Institute
Brandie Wagner	Colorado School of Public Health
Brian Williamson	Kaiser Permanente Washington Health Research Institute
Katie Wilson	University of Washington
Shangyuan Ye	Oregon Health & Science University
Guo Yu	University of California, Santa Barbara
Qian Zhao	Stanford University

President's Welcome

Coming soon…

Presidential Invited Address

Kimberly Sellers, Ph.D.

Professor of Mathematics and Statistics, Georgetown University in Washington, DC
Principal Researcher, Center for Statistical Research and Methodology Division, U.S. Census Bureau.

Bio

Kimberly Sellers is a Professor of Mathematics and Statistics, specializing in Statistics at Georgetown University in Washington, DC; and a Principal Researcher with the Center for Statistical Research and Methodology Division of the U.S. Census Bureau. A DC-area native, she completed her BS and MA degrees in Mathematics at the University of Maryland College Park, and obtained her PhD in Mathematical Statistics at The George Washington University. Prof. Sellers held previous faculty positions at Carnegie Mellon University as a Visiting Assistant Professor of Statistics, and the University of Pennsylvania School of Medicine as an Assistant Professor of Biostatistics and Senior Scholar at the Center for Clinical Epidemiology and Biostatistics (CCEB) before her return to the DC area. Her primary research interests and expertise center on statistical methods for count data that contain data dispersion with methodological interests in distribution theory, regression analysis, multivariate analysis, stochastic processes, and time series analysis. She recently authored the book, The Conway-Maxwell-Poisson Distribution (Cambridge University Press, 2023), which is the first comprehensive reference on the distribution and the flexible statistical methods derived using it to analyze dispersed count data. Sellers is an Elected Member of the International Statistical Institute (2018), and a Fellow in the American Statistical Association (ASA; 2021) and the Association for Women in Mathematics (2023) in recognition of her research, and active contributions to diversifying the fields of mathematical and statistical sciences with respect to gender and race/ethnicity. She was the 2017-2018 Chairperson for the ASA's Committee on Women in Statistics, and the inaugural chairperson of the ASA's Justice, Equity, Diversity, and Inclusion (JEDI) Outreach Group (2021-2022).

Title: Dispersed Methods for Handling Dispersed Count Data

Abstract:

While the Poisson distribution is a classical statistical model for count data, it hinges on the constraining equi-dispersion property (i.e. that the mean and variance equal). This assumption, however, does not usually hold for real count data; over-dispersion (i.e. when the variance is greater than the mean) is a more common phenomenon for count data, however data under-dispersion has also been prevalent in various settings. It would be more convenient to work with a distribution that can effectively model data (over- or under-) dispersion because it can offer more flexibility (and, thus, more appropriate inference) in the statistical methodology. This talk introduces the Conway-Maxwell-Poisson distribution along with several associated statistical methods motivated by this model to better analyze count data under various scenarios (e.g. distributional theory, generalized linear modeling, control chart theory, and count processes). As time permits, this talk will likewise acquaint the audience with available associated tools for statistical computing.

Short course I

IT tools and best practices for statistical professionals

Instructor: Angelique Zerinque, PhD, Senior Consultant and Data Science Competency Lead, Daugherty Business Solutions

Instructor's biography: As the Principal Consultant and Data Science Competency Lead at Daugherty Business Solutions, Dr. Zerinque is an accomplished data scientist with extensive expertise in insight oriented statistical modeling, clustering, natural language processing (NLP), predictive modeling, anomaly detection, optimization, and a myriad of other machine learning and data analytics techniques. She has successfully managed a wide range of projects, including those involving database design for electronic medical records, claims, pharmacy, supply chain, and market research data. She has been working across numerous data platforms, from PostGRES to Hadoop to Big Query, and has garnered a stellar reputation for outstanding communication on complex methodology to non-technical audiences. Dr. Zerinque has presented at numerous national conferences, sharing her knowledge and passion for data science with a global audience. As a dedicated contributor to the field, she has co-authored multiple journal articles and a book chapter, plus mentor and leader to junior analysts.

Description: Companies run on data. To manage those data needs and uses in the business world, IT professionals have developed tools and practices for better data management, code management, communication between teams, automation of routine tasks, and speeding up analysis and code development. While these processes and standards are rarely taught in statistical programs, they can provide a great benefit to statistical professionals. The purpose of this seminar is to share these best practices and tools. Attendees will learn:

- Relational database concepts, including an introduction to free SQL database tools and coding
- How to develop and implement a basic data governance strategy
- Strategies for making code clearer, more organized, and reusable
- Use of free version control software for better tracking of code changes
- Tools and approaches for automating routine tasks, such as updating data, producing clinical trial reports, checking for code errors, and other efforts
- Open-source software and packages for making documentation faster and easier
- Options for enabling better tracking and sharing of data changes and analysis results

Short course II

Real-World Evidence in Drug Development and Regulatory Decision-Making: Current Status, Challenges, and Opportunities

Instructor: Jie Chen, Ph.D., Chief Scientific Officer, Elixir Clinical Research

Instructor's biography: Dr. Jie Chen is the Senior Vice President and head of Biometrics, Overland Pharmaceuticals and a visiting member of the Center for Innovative Study Design, Stanford University. Before joining Overland in 2020, he was a distinguished Scientist in biostatistics at Merck Research Laboratories (US). He also worked as a global group head and/or senior director in several multinational biopharmaceutical companies including AstraZeneca, Merck Serono, and Novartis. Dr. Chen has over 25 years of experience in biopharmaceutical R&D and has been invited to give short courses at ASA Regulatory-Industry Statistics Workshops and EMA statistics symposium and deliver invited / keynote speeches at national or international conferences. He is a member of the editorial boards for the Contemporary Clinical Trials and the Journal of Biopharmaceutical Statistics and also a co-lead for one of the ASA RWE Scientific Working Group sub-teams. Jie has co-authored a book on Medical Product Safety Evaluation: Biological Models and Statistical Methods (with Heyse and Lai) and published over 40 papers in peer-reviewed statistics journals. He is a Fellow of the ASA.

Description: Real-world data (RWD) and real-world evidence (RWE) have traditionally been used in medical product development. Since the passage of the 21st Century Cures Act in 2016, the use of RWD and RWE in product development and regulatory decision has received increasing attention. Recently, the US Food and Drug Administration issued several guidance documents on the use of RWD and RWE to support regulatory decision-making for drugs and biologics. This short course will provide an overview on current development, challenges, and opportunities in use of RWE in drug development and regulatory decision-making. Some preliminary knowledge about medical product development and regulatory decision process is helpful, but not required, to understand how RWD and RWE can be used in the design, conduct, analysis, and result interpretation of RCTs and in regulatory decision. The short course will (1) provide an overview of medical product development processes including preclinical discovery and research, clinical development phases, and post-approval life-cycle management, (2) present regulatory agencies and their requirements, relevant guidance documents and approval processes, (3) describe the traditional use of RWD and RWE in medical product development and regulatory decision-making, (4) discuss the assessment of fit-for-purpose RWD, estimands of RWE studies, target trial emulation, evidence synthesis, use of digital health technologies, decentralized clinical trials, RWD and RWE for rare diseases, (5) a roadmap for formulating RWE studies and causal inference frameworks, and (6) challenges and opportunities when using RWE in drug development and regulatory decision-making. Illustrative examples are given throughout the lecture. The target audience includes statisticians and quantitative scientists who are engaged in research, development (especially clinical trials), regulatory process, and life-cycle management of medical products.

WNAR Code of Conduct Policy

All participants are required to follow the WNAR code of conduct policy

As a professional organization composed of diverse individuals, WNAR is committed to fostering a culture of inclusion, professionalism and civil discourse that cultivates a respectful environment where ideas are exchanged openly and freely. WNAR is committed to creating a professional environment for participants at all stages of their careers, and especially for our more junior members.

Inappropriate, unprofessional, harassing, or threatening behavior is not tolerated at the WNAR annual meeting or any other WNAR event. This includes threatening physical or verbal interactions, deliberate intimidation, stalking, sexual images in public spaces, unauthorized or inappropriate photography or recording, inappropriate or unwanted physical contact, unwelcome sexual attention, or verbal harassment. Verbal harassment includes harassing comments relating to race, ethnicity, religion, gender, gender identity or expression, sexual orientation, disability, veteran status, or other protected statuses, and will not be tolerated in our community.

All meeting participants must comply fully with the WNAR Code of Conduct. Participants include, but are not limited to, conference attendees, guests, staff, contractors, vendors, and exhibitors. The Code applies to social events as well as all scientific sessions, workshops, tutorials, roundtables, and short courses.

If you have any knowledge of a violation to the WNAR Code of Conduct, please contact a member of the event staff (identified by their badges, or present at the registration desk) immediately and/or email wnar@wnar.org. If there are any concerns regarding the Code of Conduct, please contact wnar@wnar.org.

Scientific Program

Monday, June 19 8:30-10:15

WNAR Invited 1 Monday, June 19, 2023 Katmai Room

Improving Efficiency in Randomized Controlled Trials by Leveraging Baseline Variables

Organizer & Chair: Ting Ye, University of Washington

8:30 **Toward better practice of covariate adjustment in randomized controlled trials**

Yanyao Yi, Eli Lilly and Company

8:55 **Robust methods to improve efficiency and reduce bias in estimating survival curves in randomized clinical trials**

Min Zhang, University of Michigan

9:20 **To adjust or not to adjust? Estimating the average treatment effect in randomized experiments with missing covariates**

Anqi Zhao, National University of Singapore

9:45 **Floor Discussion**
Discussant: Frank Bretz, Novartis

WNAR Invited 2 Monday, June 19, 2023 Dillingham Room

Innovative statistical methodologies on network modeling and analysis

Organizer: Wen Zhou, Colorado State University

Chair: Yuan Zhang, The Ohio State University

8:30 **Modeling Hypergraphs with Diversity and Heterogeneous Popularity**

Ji Zhu, University of Michigan

8:55 **K-sample testing for multinomials, with applications in text data analysis**

Tracy He, Harvard University

9:20 **Nonparametric inference on network effects of general relationship network data**

Wen Zhou, Colorado State University

9:45 **Spectral clustering via adaptive layer aggregation for multi-layer networks**

Yang Feng, New York University

WNAR Invited 3 Monday, June 19, 2023 King Salmon Room

Recent advances in the statistical modeling and analysis of complex spatial data

Organizer & Chair: Huiyan Sang, Texas A&M University

8:30 **Local Bayesian models for non-stationary spatial data**

Bani Mallick, Texas A&M University

8:55 **Spatial Heterogeneous Additive Partial Linear Model: A Joint Approach of Bivariate Spline and Forest Lasso**

Zhengyuan Zhu, Iowa State University

9:20 **Reinforcement Learning and Step Selection Analysis for Animal Movement Data**

Toryn Schafer, Texas A&M University

9:45 **Bayesian Nonparametric Density Estimation on Complex Domains**

Huiyan Sang, Texas A&M University

WNAR Invited 4 Monday, June 19, 2023 Illiama Room

The net benefit/chance of a longer survival

Organizer & Chair: Isao Yokota, Hokkaido University

8:30 **Regression modelling for net chance of a longer survival: pseudo-observation approach**

Isao Yokota, Hokkaido University

8:55 **Regressions for Generalized Pairwise Comparisons: from the Probabilistic Index to the Net Treatment Benefit**

Mickael De Backer, International Drug Development Institute

9:20 **Estimating individualized treatment rules by optimizing the adjusted probability of a longer survival**

Ying-Qi Zhao, Fred Hutchinson Cancer Center

9:45 **Graphing the Probability of Longer Survival to Assess the Efficacy of New Cancer Therapies**

Mickael LeBlanc, Fred Hutchinson Cancer Center

WNAR Invited 5 Monday, June 19, 2023 Aspen Room

Novel statistical methods for data collection and integration

Organizer: Zehang Li, University of California, Santa Cruz

Chair: Le Bao, The Pennsylvania State University

8:30 **A case-control sampling strategy for zero-inflated models with an application to female sex worker mapping in sub-Saharan Africa**

Le Bao, The Pennsylvania State University

8:55 **Integrative Heterogeneous Learning for Intensive Complex Longitudinal Data**

Annie Qu, University of California, Irvine

9:20 **Bayesian active questionnaire design for verbal autopsies**

Zehang Li, University of California, Santa Cruz

9:45 **Tree-informed Bayesian multi-source domain adaptation: cross-population probabilistic cause-of-death assignment using verbal autopsy**

Zhenke Wu, University of Michigan

Student Paper 1 Monday, June 19, 2023 Spruce Room

Chair: Paromita Dubey

8:30 **Fatty acid based dietary estimation when calibration coefficients are unavailable**

Jennifer McNichol, University of Victoria

8:50 **Analysing demographic parameters of anadromous Dolly Varden (Salvelinus malma malma) using Bayesian multi-state capture-recapture modelling**

Arjun Banik, University of Victoria

9:10 **A nonstationary spatial covariance model for data on graphs**

Michael Christensen, Duke University

9:50 **Quantile-Parameterized Meta-B Distributions and their Application to Survival Analysis**

Bryan McNair, Colorado School of Public Health, University of Colorado Anschutz Medical Campus

Speed Talk 1 Monday, June 19, 2023 Lupine Room

Chair: Hao Feng

8:30 **Strategic Use of Metaheuristics in Clinical Trial Enrollment Design with the Poisson-gamma Model**

Mitchell Schepps, UCLA

8:35 **Bayesian semiparametric variable selection with shrinkage prior**

MingAn Yang, University of New Mexico

8:40 **Inverse Leverage Effect for Cryptocurrencies and Meme Stocks: A Comprehensive Framework**

Steven Kou, Boston University

8:45 **Detecting Changes in Quantile Regression Models with Application to Urinary Glycosaminoglycans (GAGs) Data**

Ramadha Piyadi Gamage, Western Washington University

8:50 **Methods to Analyze Shedding Data in Vaccine Studies**

Kenneth Liu, Merck & Co., Inc.

8:55 **The Effect of Misusing Error Rates on Reproducibility**

Melinda McCann, Oklahoma State University

9:00 **Clustering of functional data prone to complex heteroscedastic measurement error**

Andi Mai, Indiana University - Bloomington

9:05 **Variable selection in modeling clustered data via within-cluster resampling**

Shangyuan Ye, Oregon Health and Science University

9:10 **Meta-Regression Methods for Rare-Event Data**

Brinley Zabriskie, Brigham Young University

9:15 **When a Cusum Stops, What Confidence Is There that the Alarm Is Not False?**

Moshe Pollak, Hebrew University of Jerusalem

9:20 **A new metric to evaluate algorithm complexity for group testing**

Christopher Bilder, University of Nebraska-Lincoln

9:25 **Bias correction in estimating proportions by pooled testing**

Graham Hepworth, The University of Melbourne

9:30 **Estimating the impact of sugar-sweetened beverages taxes in California on mean body mass index (BMI) and obesity prevalence using the synthetic control method**

Catherine Lee, Kaiser Permanente Northern California, Division of Research

Monday, June 19 10:30-12:15

WNAR Invited 6 Monday, June 19, 2023 Katmai Room

Recent Development on Categorical Data Analytics

Organizer & Chair: Krishna Saha, Central Connecticut State University

10:30 **Causal Discovery for Categorical Data via Classification with Optimal Label Permutation**

Yang Ni, Texas A&M University

10:55 **Relative risk, risk difference, or something else? Presenting meaningful treatment measures for binary outcomes in clinical studies**

Claudia Pedroza, McGovern Medical School at The University of Texas Health Science Center at Houston

11:20 **Bayesian regression model with suppressed mortality: An application to drought and health impact study**

Yeongjin Gwon, University of Nebraska Medical Center

11:45 **Benchmarking of a Bayesian single cell RNAseq differential gene expression test for dose-response study designs**

Samiran Sinha, Texas A&M University

WNAR Invited 7 Monday, June 19, 2023 Dillingham Room

Statistics in Biosciences (SIBS): Real world challenges and recent methodological developments

Organizer & Chair: Organizer: Joan Hu, Simon Fraser University, Canada; Chair: Anqi (Angela) Chen, Simon Fraser University, Canada

10:30 **Statistical Learning and Dynamic Optimization in Kidney Paired Donation Programs**

Peter Song, University of Michigan – Ann Arbor, USA

10:55 **Learning Sparse Time-Varying Log-Ratios of Longitudinal Metabolomics in Relation to Birth Outcomes**

Zhen Chen, NICHD/NIH, USA

11:20 **Non-Markovian Multistate Models**

Lupe Guadalupe Gómez-Melis, Universitat Politècnica de Catalunya-BarcelonaTECH, Spain

11:45 **How can we use wastewater viral signals to tell about COVID-19 hospitalizations?**

Ken Peng, Simon Fraser University, Canada

WNAR Invited 8 Monday, June 19, 2023 King Salmon Room

Novel Network and Image Methods

Organizer & Chair: Bailey Fosdick, University of Colorado Anschutz Medical Campus

10:30 **Higher-order accurate two-sample network inference and network hashing**

Yuan Zhang, The Ohio State University

10:55 **Unbiased and Robust Analysis of Co-localization in Super-resolution Microscope Images**

Hui Zhang, Northwestern University

11:20 **Doubly sparse network learning using node features**

Joshua Cape, University of Wisconsin-Madison

11:45 **ECoHeN: A Hypothesis Testing Framework for Extracting Communities from Heterogeneous Networks**

Bailey Fosdick, University of Colorado Anschutz Medical Campus

WNAR Invited 9 Monday, June 19, 2023 Illiama Room

Causal Inference and Fairness for Complex Data Analysis

Organizer & Chair: Yang Feng, New York University

10:30 **Eigen selection in spectral clustering: a theory-guided practice**

Yingying Fan, University of Southern California

10:55 **Neyman-Pearson and equal opportunity: when efficiency meets fairness in classification**

Xin Tong, University of Southern California

11:20 **Equality of opportunity in Neyman-Pearson classification**

Lucy Xia, Hong Kong University of Science and Technology

11:45 **Optimal Nonparametric Inference with Two-Scale Distributional Nearest Neighbors**

Jinchi Lv, University of Southern California

WNAR Invited 10 Monday, June 19, 2023 Aspen Room

Causal inference under interference and complex structures

Organizer: Wen Zhou, Colorado State University

Chair: Boxiang Wang, University of Iowa

10:30 **TBAAn instrumental variable method for point processes**

Shizhe Chen, University of California, Davis

10:55 **Distribution-free Randomization Methods for Causal Inference under Interference**

Panagiotis Toulis, University of Chicago

11:20 **The synthetic instrument**

Linbo Wang, University of Toronto

11:45 **Floor Discussion**

Wen Zhou, Colorado State University

Student Paper 2 Monday, June 19, 2023 Spruce Room

Chair: Ramadha Piyadi

10:30 **Approximating Multi-arm Deep Learners with In-situ Trained Ensemble of Shallow Artificial Neural Networks**

Ved Piyush, University of Nebraska - Lincoln

10:50 **Towards Causal Discovery with Statistical Guarantees**

Shreya Prakash, University of Washington

11:10 **Necessary and Sufficient Conditions for the Chi-square and Normal Approximations in Large Contingency Tables**

Chong Wu, Rutgers University

11:30 **A New Criterion for Determining a Cutoff Value Based on the Biases of the Incidence Proportions in the Presence of Outcome Misclassifications**

Norihiro Suzuki, Tokyo Medical University

Speed Talk 2 Monday, June 19, 2023 Lupine Room

Chair: Qian Zhao

10:30 **Space-time Models for Landscape Structure and Habitat Change Effects on the Abundance of Wintering Neotropical Migratory Shorebirds**

Avishek Chakraborty, University of Arkansas

10:35 **A hierarchical modeling framework for estimating individual- and population-level reproductive success from movement data**

Joe Eisaguirre, US Geological Survey, Alaska Science Center

10:40 **Latent Trait Shared Parameter Mixed Models for Missing Ordinal Ecological Momentary Assessment Data**

John Cursio, University of Chicago

10:45 **Two Sample Test for Eigendecompositions of Functional Data**

Angel Garcia de la Garza, Albert Einstein College of Medicine

10:50 **High Dimensional Portfolio Selection with Cardinality Constraints**

Yifeng Guo, The University of Hong Kong

10:55 **Cox model-based kernel function for clinical data**

Seungyeoun Lee, Sejong University

11:00 **Biclustering Multivariate Longitudinal Data with Application to Recovery Trajectories of White Matter After Sport-Related Concussion**

Jaroslaw Harezlak, Indiana University

11:05 **Identifying gene-environment associations using k-partite network analysis**

Mira Park, Eulji University

11:10 **Conditional or Unconditional Logistic Regression for Matched Case-Control Studies?**

Fei Wan, Washington University in St Louis

11:15 **Statistical Assessment of Biomarker Replicability using MAJAR Method**

Song Zhai, Merck

11:20 **Random Forests and Phenotype Clustering**

Barbara Bailey, San Diego State University

11:25 **Joint analysis of Human and food metabolomics for health-driven biomarker detection.**

Sakaiza Rasolofomanana Rajery, University of Colorado Anschutz Medical Campus

11:30 **Comparative variable selection stability in time-to-event models**

Andy Kaempf, Oregon Health & Science University

IMS 1 Monday, June 19, 2023 Firewood Room

Spatial Bayesian Analysis and Causal Inference

Organizer: Annie Qu, University of California, Irvine

Chair: Annie Qu, University of California, Irvine

10:30 **De-confounding causal inference using latent multiple-mediator pathways**

Yubai Yuan, Pennsylvania State University

10:55 **Learning Network Properties without Network Data -- A Correlated Network Scale-up Model**

Xiaoyue Niu, Pennsylvania State University

11:20 **Bayesian analysis of multivariate binary longitudinal data: Metabolic Syndrome during the menopausal transition**

Wesley Johnson, University of California, Irvine

11:45 **How close and how much? Linking health outcomes to spatial distributions of built environment features**

Veronica Berrocal, University of California, Irvine

Monday , June 19 12:25-2:05

Poster Session 1 **12:25-1:15** Monday, June 19, 2023

1. Strategic Use of Metaheuristics in Clinical Trial Enrollment Design with the Poisson-gamma Model

Mitchell Schepps, UCLA

3. Bayesian semiparametric variable selection with shrinkage prior

MingAn Yang, University of New Mexico

5. Inverse Leverage Effect for Cryptocurrencies and Meme Stocks: A Comprehensive Framework

Steven Kou, Boston University

7. Detecting Changes in Quantile Regression Models with Application to Urinary Glycosaminoglycans (GAGs) Data

Ramadha Piyadi Gamage, Western Washington University

9. Methods to Analyze Shedding Data in Vaccine Studies

Kenneth Liu, Merck & Co., Inc.

11. The Effect of Misusing Error Rates on Reproducibility

Melinda McCann, Oklahoma State University

13. Clustering of functional data prone to complex heteroscedastic measurement error

Andi Mai, Indiana University - Bloomington

15. Variable selection in modeling clustered data via within-cluster resampling

Shangyuan Ye, Oregon Health and Science University

17. Meta-Regression Methods for Rare-Event Data

Brinley Zabriskie, Brigham Young University

19. When a Cusum Stops, What Confidence Is There that the Alarm Is Not False?

Moshe Pollak, Hebrew University of Jerusalem

21. A new metric to evaluate algorithm complexity for group testing

Christopher Bilder, University of Nebraska-Lincoln

23. Bias correction in estimating proportions by pooled testing

Graham Hepworth, The University of Melbourne

25. Estimating the impact of sugar-sweetened beverages taxes in California on mean body mass index (BMI) and obesity prevalence using the synthetic control method

Catherine Lee, Kaiser Permanente Northern California, Division of Research

Poster Session 2 **1:15-2:05** Monday, June 19, 2023

2. Space-time Models for Landscape Structure and Habitat Change Effects on the Abundance of Wintering Neotropical Migratory Shorebirds

Avishek Chakraborty, University of Arkansas

4. A hierarchical modeling framework for estimating individual- and population-level reproductive success from movement data

Joe Eisaguirre, US Geological Survey, Alaska Science Center

6. Latent Trait Shared Parameter Mixed Models for Missing Ordinal Ecological Momentary Assessment Data

John Cursio, University of Chicago

8. Two Sample Test for Eigendecompositions of Functional Data

Angel Garcia de la Garza, Albert Einstein College of Medicine

10. High Dimensional Portfolio Selection with Cardinality Constraints

Yifeng Guo, The University of Hong Kong

12. Cox model-based kernel function for clinical data

Seungyeoun Lee, Sejong University

14. Biclustering Multivariate Longitudinal Data with Application to Recovery Trajectories of White Matter After Sport-Related Concussion

Jaroslaw Harezlak, Indiana University

16. Identifying gene-environment associations using k-partite network analysis

Mira Park, Eulji University

18. Conditional or Unconditional Logistic Regression for Matched Case-Control Studies?

Fei Wan, Washington University in St Louis

20. Statistical Assessment of Biomarker Replicability using MAJAR Method

Song Zhai, Merck

22. Random Forests and Phenotype Clustering

Barbara Bailey, San Diego State University

24. Joint analysis of Human and food metabolomics for health-driven biomarker detection.

Sakaiza Rasolofomanana Rajery, University of Colorado Anschutz Medical Campus

26. Comparative variable selection stability in time-to-event models

Andy Kaempf, Oregon Health & Science University

Monday , June 19 2:15-4:00

WNAR Invited 11 Monday, June 19, 2023 Katmai Room

Change-point analysis: algorithm, inference and applications

Organizer: Yue Niu, The University of Arizona

Chair: Toby Hocking , Northern Arizona University

2:15 **Some multiple changepoint applications to climate data**

Robert Lund, University of California - Santa Cruz

2:40 **Graph-based Multiple Change-point detection**

Hao Chen, University of California Davis

3:05 **Repro samples method for irregular inference problems**

Minge Xie, Rutgers University

3:30 **Simultaneous jump detection and curve estimation**

Ning Hao, University of Arizona

WNAR Invited 12 Monday, June 19, 2023 Dillingham Room

Advances in statistical methods for studying cellular heterogeneity in genomics data

Organizer & Chair: Jiebiao Wang, University of Pittsburgh

2:15 **Robust probabilistic modeling for single-cell multimodal mosaic integration and imputation**

Kathryn Roeder, Carnegie Mellon University

2:40 **Identifying and quantifying alternative transcripts from single-cell RNA sequencing data**

Wei Li, University of California, Riverside

3:05 **Accurate identification of locally aneuploid cells by incorporating cytogenetics information in single-cell data analysis**

Ziyi Li, University of Texas MD Anderson Cancer Center

3:30 **Individual-specific reference panel recovery improves cell-type-specific inference**

Hao Feng, Case Western Reserve University

WNAR Invited 13 Monday, June 19, 2023 King Salmon Room

Statistical Advances in Methods for Data Integration

Organizer: Yiwang Zhou, Assistant Professor, Department of Biostatistics, St. Jude Children's Research Hospital

Chair: Peter Song, Professor, Department of Biostatistics, University of Michigan

2:15 **GhostKnockoff inference empowers identification of putative causal variants in genome-wide association studies**

Zihuai He, Assistant Professor, Department of Neurology & Neurological Sciences Department of Medicine (Biomedical Informatics Research), Stanford University

2:40 **A Tree-based Model Averaging Approach for Personalized Treatment Effect Estimation from Heterogeneous Data Sources**

Lu Tang, Assistant Professor, Department of Biostatistics, University of Pittsburgh

3:05 **Longitudinal Self-Learning of Individualized Treatment Rules in a Nutrient Supplementation Trial with Missing Data**

Yiwang Zhou, Assistant Professor, Department of Biostatistics, St. Jude Children's Research Hospital

3:30 **Robust angle-based transfer learning in high dimensions**

Tian Gu, Postdoctoral Research Fellow, Department of Biostatistics, Harvard University

WNAR Invited 14 Monday, June 19, 2023 Illiama Room

Integrative Analysis of Multi-Modal Data with applications in risk prediction, neuroimaging, and genomic studies

Organizer & Chair: Jin Jin, Johns Hopkins University

2:15 **Enhancing the study of microbiome-metabolome interactions: a transfer-learning-inspired approach**

Yue Wang, University of Colorado Anschutz Medical Campus

2:40 **A High-dimensional multi-exposure mediation model to unravel brain structural-functional connectome interactions**

Aiying Zhang, Department of Psychiatry, Columbia University Medical Center

3:05 **Integration of multiview microbiome data and microbiome-wide association data for causal discoveries of trait-metabolite associations**

Lei Fang, Department of Statistics, University of Kentucky

3:30 **Data integration framework for disease risk prediction integrating summary-level information of multiple models with disparate sets of covariates**

Jin Jin, Johns Hopkins University

IMS 2 Monday, June 19, 2023 Aspen Room

Current Advances in Complex Data Analysis

Organizer & Chair: Paromita Dubey, University of Southern California

2:15 **Single Index Fréchet Regression**

Hans-Georg Müller, University of California, Davis

2:40 **Nonparametric regression on Lie groups with measurement errors**

Byeong Park, Seoul National University

3:05 **Learning Gaussian DAGs from Network Data**

Oscar Hernan Madrid Padilla, UCLA

3:30 **Geometry Aware Exploratory Data Analysis for Random Objects**

Paromita Dubey, University of Southern California

Student Paper 3 Monday, June 19, 2023 Spruce Room

Chair: Alex Kaizer

2:15 **Detecting Hidden Ancestry**

Riley Lamont, University of Colorado Denver

2:35 **Simulating Longitudinal Single-cell RNA Sequencing Data**

Elizabeth Wynn, University of Colorado Anschutz Medical Campus

2:55 **Robust statistical inference for very recent and strong incomplete selective sweeps**

Seth Temple, University of Washington

3:15 **Working towards inclusivity in genetic studies: Estimating accurate population structure with small reference sample sizes**

Souha Tifour, University of Colorado Denver

3:35 **Modified Jacknife Empirical Likelihood Test for Mean Residual Life Functions**

Jordan Davis, California State University, San Bernadino

WNAR Invited 15 Monday, June 19, 2023 Lupine Room

Adapting and developing methodology to address challenges in small sample studies

Organizer & Chair: Subodh Selukar, St. Jude Children's Research Hospital

2:15 **Stratified randomization in small randomized Phase 2 trials**

Megan Othus, Fred Hutchinson Cancer Center

2:40 **Efficacy designs for ultra-rare patient populations – Examples from pediatric brain tumor trials**

Arzu Onar-Thomas, St. Jude Children's Research Hospital

3:05 **Dynamic stopping rules for phase I studies to reduce the overall sample size**

Sean Devlin, Memorial Sloan Kettering Cancer Center

3:30 **Accounting for chronic Graft-versus-Host Disease status when evaluating transplant success for pediatric studies**

Subodh Selukar, St. Jude Children's Research Hospital

Tuesday, June 19 8:30-10:15

WNAR Invited 16 Tuesday, June 20, 2023 Katmai Room

Innovative Statistical Methodology Development in Precision Medicine

Organizer & Chair: Lei Liu, Washington University in St. Louis

8:30 **Gaussian Graphical Model-based Heterogeneity Analysis for Cancer Precision Medicine**

Shuangge Ma, Yale University

8:55 **Innovative precision medicine methods in subgroup identification for Alzheimer's disease**

Lei Liu, Washington University in St. Louis

9:20 **INFORBLER: Bayesian Federated Learning via Information Assembler**

Changgee Chang, Indiana University

9:45 **Covariate-Balancing Weights for ITR Generalization**

Menggang Yu, University of Wisconsin, Madison

WNAR Invited 17 Tuesday, June 20, 2023 Dillingham Room

New frontiers in Bayesian disease mapping: Spatio-temporal models for infection disease dynamics and forecasting

Organizer & Chair: Ying MacNab, University of British Columbia, Vancouver, Canada

8:30 **A multivariate spatiotemporal model for tracking COVID-19 incidence and death rates in socially vulnerable populations**

Brian Neelon, Professor, Professor, Medical University of South Carolina

8:55 **Similarity- and neighborhood-based dynamic models for infection data: Uncovering the complexities of the COVID-19 infection risks.**

Helena Baptista, Professor of the Practice, NOVA IMS - Nova Information Management School, Universidade Nova de Lisboa, Lisboa, Portugal

9:20 **Space-time infectious disease modeling, nowcasting, counterfactuals and non pharmaceutical interventions**

Andrew Lawson, Distinguished University Professor of Biostatistics, Medical University of South Carolina, USA

9:45 **Spatio-temporal dynamic models augmented by adaptive Gaussian Markov random fields, with applications to prediction and forecasting COVID-19 infection risks and infection spread**

Ying MacNab, , Associate Professor of Biostatistics, School of Population and Public Health, University of British Columbia, Canada

WNAR Invited 18 Tuesday, June 20, 2023 King Salmon Room

High dimensional data: new methods and perspectives

Organizer & Chair: Ivor Cribben, University of Alberta School of Business

8:30 **Bayesian analysis of fMRI for pre-surgical planning**

Timothy Johnson, University of Michigan

8:55 **Statistical Learning for Enhancing the Reliability of Brain Connectomics Research**

Ying Guo, Emory University

9:20 **Efficiency and Robustness Considerations in Supervised Learning**

Anand Vidyashankar, George Mason University

9:45 **Reproducibility in statistics: a high dimensional data perspective**

Ivor Cribben, University of Alberta School of Business

WNAR Invited 19 Tuesday, June 20, 2023 Illiama Room

Advances in Scalable Regression Models for Complex Data

Organizer & Chair: Andee Kaplan, Colorado State University

8:30 **Log-Gaussian Cox Process Modeling of Large Spatial Lightning Data using Spectral and Laplace Approximations**

Maryclare Griffin, University of Massachusetts Amherst

8:55 **A new BART prior for flexible modeling with categorical predictors**

Sameer Deshpande, University of Wisconsin

9:20 **Bayesian adaptive and interpretable functional regression for exposure profiles**

Daniel Kowal, Rice University

9:45 **A Bayesian Zero-Inflated Dirichlet-Multinomial Regression Model for Multivariate Compositional Count Data**

Matthew Koslovsky, Colorado State University

IMS 3 Tuesday, June 20, 2023 Aspen Room

New developments in nonparametric and semiparametric methods for complex data

Organizer & Chair: Yuan Jiang, Oregon State University

8:30 Missing data with refreshment sample in semi-parametric regression models

Jing Wang, University of Illinois Chicago

8:55 Sparse conditional functional quantile regression models with measurement error

Carmen Tekwe, Indiana University Bloomington

9:20 Statistical inference for mean functions of 3D functional objects

Lily Wang, George Mason University

9:45 Evaluation of transplant benefits with the U.S. Scientific Registry of Transplant Recipients by semiparametric regression of mean residual life

Ge Zhao, Portland State University

Student Paper 4 Tuesday, June 20, 2023 Spruce Room

Chair: Hua Zhou, UCLA

8:30 **A Bayesian hierarchical model for mortality surveillance of COVID-19 related deaths using verbal autopsy**

Yu Zhu, University of California, Santa Cruz

8:50 **Semi-parametric inference of the effective reproduction number using minimal compartmental models**

Isaac Goldstein, UC Irvine

9:10 **Tree-Regularized Bayesian Latent Class Analysis for Improving Dietary Pattern Subtyping in Small-Sized Subpopulations**

Mengbing Li, University of Michigan

9:30 **Hierarchical Shrinkage Partition Priors with an application to Mouse Tracking Data**

Ziyi Song, University of California, Irvine

9:50 **On Outcome and Sampling Weights: An In-depth Look at the Dueling Weights**

Tuo Lin, University of California, San Diego

WNAR Invited 20 Tuesday, June 20, 2023 Lupine Room

Novel stochastic models for repeated events

Organizer & Chair: Kristen Miller, University of Colorado Anschutz Medical Campus

8:30 **Bias-Correction and Test for Mark-Point Dependence with Replicated Marked Point Processes**

Ganggang Xu, University of Miami

8:55 **Network Hawkes process models for exploring latent hierarchy in social animal interactions**

Tian Zheng, Columbia University

9:20 **Stratified regression of non-Poisson process data with zero-truncation**

Anqi (Angela) Chen, Simon Fraser University

9:45 **Application of Hawkes process to epileptic seizures**

Elizabeth Juarez-Colunga, University of Colorado Anschutz Medical Campus

Tuesday, June 20 10:30-12:15

WNAR Invited 21 Tuesday, June 20, 2023 Katmai Room

Advanced causal inference methods with applications in large-scale observational data in biomedical research

Organizer & Chair: Cheng Zheng, University of Nebraska Medical Center

10:30 **A Reference-Free R-learner for Treatment Recommendation**

Ying Zhang, University of Nebraska Medical Center

10:55 **Synthetic Control with Informed Weights**

Samuel Wang, Cornell University

11:20 **A joint directed acyclic graph estimation model to detect aberrant brain connectivity in schizophrenia**

Aiying Zhang, Columbia University

11:45 **FDR Controlled Multiple Testing for Union Null Hypotheses**

Ran Dai, University of Nebraska Medical Center

WNAR Invited 22 Tuesday, June 20, 2023 Dillingham Room

Estimating SARS-CoV-2 transmission: study design and statistical analysis

Organizer & Chair: Tracy Qi Dong, Fred Hutchinson Cancer Center

10:30 **Virus transmission and sequence data: quantifying and accounting for sampling biases in phylogeography**

Caroline Colijn, Simon Fraser University

10:55 **Retrospective, Observational Studies for Estimating Vaccine Effects on the Secondary Attack Rate of SARS-CoV-2**

Fei Gao, Fred Hutchinson Cancer Center

11:20 **Evaluating the impact of study design on SARS-CoV-2 transmission estimates using mathematical modeling**

Elizabeth Brown, Fred Hutchinson Cancer Center

11:45 **Vaccine efficacy against transmission: statistical and epidemiological considerations**

Lee Kennedy-Shaffer, Vassar College

WNAR Invited 23 Tuesday, June 20, 2023 King Salmon Room

Novel methods to identify & use surrogate markers in clinical trials

Organizer & Chair: Yunshan Duan, University of Texas at Austin

10:30 **On Adaptive Randomization in Time-to-Event Clinical Trials**

Navneet Hakhu, University of California, Irvine

10:55 **Surrogacy Validation with Illness-Death Models and Principal Stratification Methods**

Emily Roberts, University of Iowa College of Public Health

11:20 **Nonparametric estimation of the causal effect of a stochastic threshold-based intervention**

Lars van der Laan, University of Washington

11:45 **Flexible Evaluation of Surrogate Markers with Bayesian Model Averaging**

Yunshan Duan, University of Texas at Austin

WNAR Invited 24 Tuesday, June 20, 2023 Illiama Room

Novel statistical methods in cancer research

Organizer & Chair: Krithika Suresh, University of Michigan

10:30 **Projecting the impact of multicancer early detection tests on stage at diagnosis: a modeling approach**

Jane Lange, Oregon Health & Science University

10:55 **Personalized estimates of reduction in cancer mortality risk from integrating prognostic models with hazard ratios from randomized clinical trials**

Matthew Schipper, University of Michigan

11:20 **Approximate Maximum Likelihood Estimation in the Mixture Cure Model from Aggregated Data with Application to Cervical Cancer Prevention**

John Rice, University of Michigan

11:45 **Model Agnostic Explanation of Survival Prediction Models for Prostate Cancer**

Krithika Suresh, University of Michigan

IMS 4 Tuesday, June 20, 2023 Aspen Room

Computational and statistical methods for large-scale biobanks and diverse types of "omics" data from diverse ancestries

Organizer & Chair: Jin Zhou, UCLA

10:30 **Knockoff-based statistics for the identification of putative causal loci in genetic studies**

Iuliana Ionita-Laza, Columbia University

10:55 **Deconvoluting cell-state trajectory distribution from bulk RNA sequencing data**

Jian Yang, Westlake University

11:20 **Statistical methods for biobanks linking medical records with genetic data**
Bogdan Pasaniuc, UCLA

11:45 **Fast and accurate RNA-Seq data normalization for formalin-fixed paraffin-embedded samples**
Xinlei (Sherry) Wang, University of Texas at Arlington

Student Paper 5 Tuesday, June 20, 2023 Spruce Room

Chair: Maryclare Griffin

10:30 **Extending People-like-Me Predictions with Mahalanobis distance for Personalized Healthcare: An application to a Longitudinal Study of Growth in Children**

Xin Jin, University of Colorado

10:50 **A new class of non-inferiority margins for designing active-controlled trials**

Antonio Olivas-Martinez, University of Washington

11:10 **Asymmetric Predictability: an information theoretic approach to causal inference**

Soumik Purkayastha, University of Michigan

11:30 **Unification of methods for estimating time-varying treatment effects from a covariate balance perspective**

Yige Li, Harvard University

11:50 **Generalized functional linear regression models with a mixture of complex function-valued and scalar-valued covariates prone to measurement error**

Yuanyuan Luan, Indiana University

WNAR Invited 25 Tuesday, June 20, 2023 Lupine Room

Navigating High-Dimensionality for Analyzing Complex Data

Organizer & Chair: Wen Zhou, Colorado State University

10:30 **Estimation and Inference for Differential Networks**

Mladen Kolar, University of Chicago

10:55 **High dimensional clustering via latent semiparametric mixture models**

Boxiang Wang, University of Iowa

11:20 **Reproducible or not: a data adaptive nonparametric procedure to define and assess reproducibility across high-throughput studies**

Austin Ellingworth, Colorado State University

11:45 **SNR Estimation under High-dimensional Linear Models**

Xiaodong Li, University of California, Davis

Machine Learning and Data Science for Complex Data

Organizer & Chair: Annie Qu, University of California, Irvine

10:30 **Data Science Ethics Issues for Statisticians**

Jessica Utts, University of California, Irvine

10:55 **Analysis of tensor or data objects in metric spaces**

Heping Zhang, Yale University

11:20 **Scalable and robust joint models for longitudinal and survival outcomes**

Jin Zhou, University of California, Los Angeles

11:45 **Recent Development for AI/ML for Drug Discovery**

Haoda Fu, Eli Lilly and Company

Tuesday, June 20 1:45-3:30

Chair: Tuo Lin

1:45 **Detection of Fine-Scale Population Structure in Genetic Summary Data with Summix**

Adelle Price, University of Colorado Anschutz Medical Campus

2:00 **Towards reliable empirical evidence in methodological biostatistical research: recent developments and remaining challenges**

Anne-Laure Boulesteix, LMU Munich, Germany* (virtual)

2:15 **Toward Fair and Robust Estimation of Optimal Treatment Regimes**

Kwangho Kim, Harvard Medical School

2:30 **Propensity Score Matching For Real World Effectiveness Research: A Comparison Of Approaches To Addressing Time**

Samantha Roberts, University of Colorado Anschutz Medical Campus

2:45 **A Mixed-Effect Logic Regression Model for Meta-Analysis and Inference**

Enakshy Dutta, Department of Statistics, University of Nebraska-Lincoln* (virtual)

3:00 **Dynamic Prediction of Non-Gaussian Functional Outcomes with Fast Generalized Functional Principal Components Analysis**

Ying Jin, University of Colorado Anschutz Medical Campus* (virtual)

Contributed 2 Tuesday, June 20, 2023 Dillingham Room

Chair: Subodh Selukar & Toryn Schafer

1:45 **Elastic Priors to Dynamically Borrow Information from Historical Data in Clinical Trials**

Ying Yuan, The University of Texas MD Anderson Cancer Center

2:00 **Controlled variable selection with a biased sample using tilted knockoff**

Qian Zhao, Stanford University

2:15 **The textures of sarcoidosis: quantifying lung disease through variograms**

William Lippitt, University of Colorado Anschutz Medical Campus

2:30 **Adaptive algorithms for repeated biomarker testing: promise and cautions for early detection of cancer**

Tracey Marsh, Fred Hutchinson Cancer Center

2:45 **A Likelihood-based Interval Design for Phase I Clinical Trials**

Baolin Wu, University of California - Irvine

3:00 **Using simultaneous regression calibration to study the effect of multiple error-prone exposures on disease risk utilizing biomarkers developed from a controlled feeding study**

Cheng Zheng, University of Nebraska Medical Center

Contributed 3 Tuesday, June 20, 2023 King Salmon Room

Chair: Mengbing Li & Brinely Zabriskie

1:45 **In Defense of (Unrestricted) Spatial Regression**

Dale Zimmerman, University of Iowa

2:00 **Choosing the number of clusters in unsupervised time series clustering of diurnal multipollutant air pollution patterns**

Brittney Marian, University of Southern California

2:15 **Parametric tests for hierarchical structured component models for pathway analysis**

Taesung Park, Seoul National University

2:30 **A Bayesian approach to assess the effects of temperature on aphid transmitted potato viruses**

Oswaldo Villena, Georgetown University

2:45 **Biomedical Oriented Logistic Dantzig Selector (BOLD Selector) for Biomarker Selection and its Applications to Patient Group Differentiation across Parkinsonism Spectrum**

Frederick Kin Hing Phoa, Institute of Statistical Science, Academia Sinica

3:00 **Catch me if you can: Localizing signals with knockoff e-values**

Paula Gablenz, Stanford University

WNAR Invited 26 Tuesday, June 20, 2023 Illiama Room

New methods for contemporary data analysis

Organizer & Chair: Zhihua Su, University of Florida (Mengyan Li, Bentley University)

1:45 **Network Functional Autoregression Model**

Yanyuan Ma, Pennsylvania State University

2:10 **Semi-supervised Triply Robust Inductive Transfer Learning**

Mengyan Li, Bentley University

2:35 **Response Variable Selection in Multivariate Linear Regression**

Zhihua Su, University of Florida

3:00 **Sufficient Dimension Reduction for Poisson Regression**

Jianxuan Liu, Syracuse University

Recent advances in analysis of time-to-event data

Organizer & Chair: Gang Li, University of California, Los Angeles (UCLA)

1:45 **Inferring random change point from left-censored longitudinal data by segmented mechanistic nonlinear models, with application in HIV surveillance study**

Hongbin Zhang, University of Kentucky

2:10 **Scalable and robust censored linear regression with applications to biobank studies**

Hua Zhou, UCLA

2:35 **Probability scale residuals for interval-censored data**

Eric Kawaguchi, University of Southern California

3:00 **Concordance in censored regression analysis**

Zhezhen Jin, University of Columbia

Advancing Associational and Causal Insights from Large-scale Data

Organizer & Chair: Jinyuan Liu, Vanderbilt University, Department of Biostatistics

1:45 **Long Story Short: Omitted Variable Bias in Causal Machine Learning**

Carlos Cinelli, University of Washington, Department of Statistics

2:10 **Demystifying Causal Interpretations from High-dimensional Potential Outcomes: Applications to Microbiome Data**

Jinyuan Liu, Vanderbilt University, Department of Biostatistics

2:35 **Detecting High-dimensional association in large scale genomic data by pairwise composite likelihood**

Qunhua Li, Penn State University, Department of Statistics

3:00 **Prediction Intervals with High Dimensional Models: With Applications in LASSO and Deep Neural Networks**

Zhe Fei, UC Riverside, Statistics Department

WNAR Invited 28 Tuesday, June 20, 2023 Lupine Room

Recent Advances in Statistical Methods for Complex Data Analysis

Organizer & Chair: Panpan Zhang, Vanderbilt University Medical Center

1:45 **The Statistical Triangle**

Jiashun Jin, Carnegie Mellon University

2:10 **Double Anchoring Events Based Sigmoidal Mixed Model: An Application in Alzheimer's Disease Progression**

Panpan Zhang, Vanderbilt University Medical Center

2:35 **Doubly Robust Estimation under Covariate-induced Dependent Left Truncation**

Ronghui Xu, University of California, San Diego

3:00 **Power-enhanced Simultaneous Test of High-dimensional Mean Vectors and Covariance Matrices with Application to Gene-set Testing**

Xiufan Yu, University of Notre Dame

Tuesday, June 20 3:45-5:30

WNAR Invited 29 Tuesday, June 20, 2023 Katmai Room

Advanced meta-analysis methods for real-world data

Organizer & Chair: Mengli Xiao, University of Colorado Anschutz Medical Campus

3:45 **An iterative method for detecting outlying studies in meta-analysis**

Chong Wu, University of Texas MD Anderson Cancer Center

4:10 **A Bayesian model for combining standardized mean differences and odds ratios in the same meta-analysis**

Lifeng Lin, University of Arizona

4:35 **An overview and comparison of recently proposed methods for estimating the reference interval from a meta-analysis**

Lianne Siegel, University of Minnesota

5:00 **Bayesian meta-regression for heterogenous treatment effects with incomplete noncompliance data**

Mengli Xiao, University of Colorado Anschutz Medical Campus

WNAR Invited 30 Tuesday, June 20, 2023 Dillingham Room

Advances in Statistical and Computational Methods for Omics Data Analysis

Organizer: Wei Sun, Fred Hutchinson Cancer Center

Chair: Si Liu, Fred Hutchinson Cancer Center

3:45 **DNAcycP: A Deep Learning Attempt at Mechanical Properties of DNA**

Keren Li, University of Alabama at Birmingham

4:10 **Network Inference and Deep Learning for Multi-Omics Classification**

Katerina Kechris, University of Colorado Anschutz Medical Campus

4:35 **Cluster Analysis of Longitudinal Profiles for Compositional Count Data to Study the Competition-Colonization Trade-Off in Ecology**

Yuan Jiang, Oregon State University

5:00 **Robust Normalization and Integration of Single-cell Protein Expression across CITE-seq Datasets**

Ye Zheng, Fred Hutchinson Cancer Center

WNAR Invited 31 Tuesday, June 20, 2023 King Salmon Room

Statistical challenges developing and evaluating risk prediction models in modern cohorts

Organizer & Chair: Yu-Ru Su, Biostatistics Division, Kaiser Permanente Washington Health Research Institute, USA

3:45 **Prediction modeling with EHR data--we're not in inference anymore**

Yates Coley, Biostatistics Division, Kaiser Permanente Washington Health Research Institute, USA

4:10 **Risk projection for time-to-event outcome from population-based case-control studies leveraging summary statistics from the target population**

Li Hsu, Public Health Sciences Division, Fred Hutchinson Cancer Center, USA

4:35 **Assessing risk model calibration with missing covariates**

Yei-Eun Shin, Department of Statistics, Seoul National University, South Korea

5:00 **Accommodating population differences when validating risk prediction models**

Ruth Pfeiffer, Division of Cancer Epidemiology and Genetics, National Cancer Institute, NIH, HHS, USA

WNAR Invited 32 Tuesday, June 20, 2023 Illiama Room

Modern approaches to modeling longitudinal and survival data

Organizer & Chair: Susan Mikulich Gilbertson, University of Colorado Anschutz Medical Campus

3:45 **Modeling longitudinal data in patients with focal epilepsy**

Kristen Miller, University of Colorado Anschutz Medical Campus

4:10 **Random forests for survival data: which methods work best and under what conditions?**

Matt Berkowitz, Simon Fraser University

4:35 **Combining longitudinal self-report and biomarker information to develop recommendations for evaluating marijuana use in adolescents**

Susan Mikulich Gilbertson, University of Colorado Anschutz Medical Campus

5:00 **TREAT NOW: Statistical Challenges and Solutions for a Multi-Site Outpatient COVID-19 Randomized Trial**
Alexander Kaizer, University of Colorado Anschutz Medical Campus

IMS 7 Tuesday, June 20, 2023 Aspen Room

Computational and statistical methods for advancing precision medicine in a “data explosion” era

Organizer: Jin Zhou, UCLA

Chair: Lei Liu, Washington University in St. Louis

3:45 **Statistical models for Biobank-scale data**

Sriram Sankararaman, UCLA

4:10 **Improving efficiency in the estimation of individualized treatment rules via pairwise comparison**

Yichi Zhang, The University of Rhode Island

4:35 **Developing generalizable risk prediction models utilizing bio bank data by enforcing calibration**

Jinbo Chen, Developing generalizable risk prediction models utilizing bio bank data by enforcing calibration

5:00 **Floor Discussion**

Haoda Fu, Eli Lilly and Company

WNAR Invited 33 Tuesday, June 20, 2023 Spruce Room

Combining Structured and Unstructured Electronic Health Record Data for Clinical Outcomes Prediction: Is the Sum Greater Than its Parts?

Organizer: Kathryn Colborn, University of Colorado Anschutz Medical Campus

Chair: Katharina Kann, University of Colorado Boulder

3:45 **Application of the Knockoff Filter to High Dimensional Structured EHR Data for Postoperative Complication Surveillance**

Kathryn Colborn, University of Colorado Anschutz Medical Campus

4:10 **Model Fusion Techniques for Combining Structured and Unstructured EHR Data**

Yaxu Zhuang, University of Colorado Anschutz Medical Campus

4:35 **Combining Structured and Unstructured EHR Data for Postoperative Complication Surveillance Using Deep Learning**

Mohammed Al-Garadi, Vanderbilt University

5:00 **Natural Language Processing Techniques for Postoperative Complication Surveillance**

Cory Paik, University of Colorado Boulder

WNAR Invited 34 Tuesday, June 20, 2023 Lupine Room

Innovative Methods for Joint Modeling and Dynamic Prediction

Organizer & Chair: Lihui Zhao, Northwestern University

3:45 **Dynamic Risk Prediction of Survival in Liver Cirrhosis: A Comparison of Landmarking Approaches**

Mitchell Paukner, Northwestern university

4:10 **Joint modeling in presence of informative censoring on the retrospective time scale with application to palliative care research**

Quran Wu, University of Florida

4:35 **Joint modeling of high-dimensional longitudinal biomarkers and a time-to-event outcome**

Jiehuan Sun, University of Illinois at Chicago

5:00 **Dynamic Risk Prediction for Cardiovascular Events**

Lihui Zhao, Northwestern University

Wednesday, June 21 8:30-10:15

WNAR Invited 35 Wednesday, June 21, 2023 Katmai Room

Considerations and best practices for using race, ethnicity, ancestry in different areas of statistics and data science research

Organizers: Audrey Hendricks, University of Colorado Anschutz Medical Campus
Maricela Cruz, Kaiser Permanente Washington Health Research Institute

Chair: Audrey Hendricks, University of Colorado Anschutz Medical Campus

8:30 **Decoding Race**

Mariah Tso, University of California Los Angeles

8:55 **Opportunities and challenges for disaggregation of race and ethnicity data using electronic health records**

Miguel Marino, Oregon Health and Science University

9:20 **Challenges and considerations of using race, ethnicity, and ancestry labels in genomics research**

Betzaida Maldonado, University of Colorado Anschutz Medical Campus

9:45 **Floor Discussion**

Maricela Cruz, Kaiser Permanente Washington Health Research Institute

WNAR Invited 36 Wednesday, June 21, 2023 Dillingham Room

Inference methods for big, complex and heterogeneous data

Organizer: Minge Xie, Rutgers, The State University of New Jersey

Chair: Ming-hui Chen, University of Connecticut

8:30 **SAM – A Shared Atoms Model for Dependent Clustering of Multiple Groups**

Yuan Ji, University of Chicago

8:55 **On constructing the confidence interval on clonality and entropy**

Lu Tian, Stanford University

9:20 **Cointegrated Matrix Autoregressive Models**

Han Xiao, Rutgers University

9:45 **Meta-analysis of variability in survival outcomes in precision oncology trials**

Ying Lu, Stanford University

WNAR Invited 37 Wednesday, June 21, 2023 King Salmon Room

Recent Development on Integration of Auxiliary Data

Organizer & Chair: Fei Gao, Fred Hutchinson Cancer Center

8:30 **Robust score tests for incomplete covariates and a time-to-event outcome with high-dimensional auxiliary variables**

Kin Yau Wong, The Hong Kong Polytechnic University

8:55 **Data integration for mediation analysis with moment restriction models**

Fan Xia, University of California, San Francisco

9:20 **Harmonization and data integration for neuropsychological batteries**

Gary Chan, University of Washington

9:45 **Floor Discussion**

Fei Gao, Fred Hutchinson Cancer Center

WNAR Invited 38 Wednesday, June 21, 2023 Illiama Room

Breakthroughs in statistical methods for spatial transcriptomics and multiplex imaging data

Organizer & Chair: Thao Vu, Colorado School of Public Health

8:30 Joint Statistical Modeling for Morphological and Molecular Features in Multi-section Cancer Spatial Transcriptomics Data

Jian Hu, Emory University

8:55 SMASH: Scalable Method for Analyzing Spatial Heterogeneity of Genes in Spatial Transcriptomics Datasets

Souvik Seal, Colorado School of Public Health

9:20 Platform-Independent Pipelines for Analysis of Multiplex Tissue Imaging Data

Mansooreh Ahmadian, Colorado School of Public Health

9:45 **Floor Discussion**

Thao Vu

WNAR Invited 39 Wednesday, June 21, 2023 Aspen Room

Advances in modeling of epidemics

Organizer: Elizabeth Juarez-Colunga, University of Colorado Anschutz Medical Campus

Chair: Claire Levek, University of Colorado Anschutz Medical Campus

8:30 **A joint Bayesian hierarchical model for estimating SARS-CoV-2 genomic and subgenomic RNA viral dynamics and seroconversion**

Tracy Qi Dong, Fred Hutchinson Cancer Center

8:55 **Estimating change points in epidemic curves**

Mario Santana Cibrian, National Autonomous University of Mexico Juriquilla, Mexico

9:20 **Social network analysis and community detection on spread of COVID-19**

Saman Muthukumarana, University of Manitoba

9:45 **Modeling disease transmission dynamics with a time-varying coefficient state-space model**

Kayleigh Keller, Colorado State University

Wednesday, June 21 10:30-12:15

WNAR Invited 40 Wednesday, June 21, 2023 Katmai Room

Getting to the Gut of the Matter: New Statistics for Studying the Microbiome

Organizer: Michael Wu, Fred Hutchinson Cancer Center

Chair: Amarise Little, Fred Hutchinson Cancer Center

10:30 **Assessing the conditional correlation between individual genomic features and microbial taxa**

Michael Wu, Fred Hutchinson Cancer Center

10:55 **Robust and comprehensive mapping of microbe-outcome relationships via zero-inflated quantile processes**

Wodan Ling, Weill Cornell Medicine

11:20 **Developing statistical methods to compare Phylogenetic Trees with non-identical leaf sets**

Maria Valdez, University of Washington

11:45 **Accurate estimation in microbial source tracking**

Lingling An, University of Arizona

WNAR Invited 41 Wednesday, June 21, 2023 Dillingham Room

Advances in Single-Cell and Spatial Transcriptomics*

Organizer: Lingling An, University of Arizona

Chair: Hongmei Jiang, Northwestern University

10:30 **Accurate and scalable spatial domain detection via integrated reference-informed segmentation for spatial transcriptomics**

Xiang Zhou, University of Michigan

10:55 **Spatially Variable Gene Detection in Integrated Single-cell and Spatial Transcriptomics Data**

Yiwen Liu, University of Arizona* (virtual)

11:20 **Giotto: integrative analysis and visualization of spatial expression data**

Guocheng Yuan, Mount Sinai

11:45 **FastQDesign: A realistic FASTQ-based framework for ScRNA-seq study design issues**

Chien-wei Lin, Medical College of Wisconsin

WNAR Invited 42 Wednesday, June 21, 2023 King Salmon Room

Registries and repositories: opportunities and challenges

Organizer: Laura Pyle, University of Colorado Anschutz Medical Campus

Chair: Leslie Lange, University of Colorado Anschutz Medical Campus

10:30 **Challenges of combining data from biobanks and prospective cohorts in a genetics/genomics consortium**

Leslie Lange, University of Colorado Anschutz Medical Campus

10:55 **Genomic analyses in population-scale biobanks: ascertainment bias and digital phenotyping impact inference of complex trait architecture**

Chris Gignoux, University of Colorado Anschutz Medical Campus

11:20 **Environmental and cultural confounding of fine-scale population structure with increasing sample size in genomic studies**

Katie Marker, University of Colorado Anschutz Medical Campus

11:45 **Secondary analyses of clinical trial and EHR data from multisite research consortia**

Laura Pyle, University of Colorado Anschutz Medical Campus

Spatial Models for Rich Data in Ecology and Public Health

Organizer & Chair: Maryclare Griffin, University of Massachusetts Amherst

10:30 **Understanding Tree Demography Using Overlapping Lidar Scans and Spatial Entity Resolution**

Andee Kaplan, Colorado State University

10:55 **A mechanistic model for invasive tree species**

Yawen Guan, University of Nebraska Lincoln

11:20 **Regularized latent trajectory models for spatio-temporal population dynamics**

Xinyi Lu, Colorado State University

11:45 **Data Visualization in Statistical Research**

Joshua French, University of Colorado Denver

New advancements in personalized medicine under complex regimens and high dimensional data

Organizer & Chair: **Maiying Kong, University of Louisville**

10:30 **Statistical methods for assessing treatment effects on ordinal outcomes using observational data**

Maiying kong, University of Louisville

10:55 **asmbPLS: Adaptive Sparse Multi-block Partial Least Square for Survival Prediction using Multi-Omics Data**

Susmita Datta, University of Florida

11:20 **Multiple robust estimation and information integration for marginal causal effect under binary outcomes**

Ming Wang, Case Western Reserve University

11:45 **Doubly Robust Methods for Selecting Optimal Treatment**

Qi Zheng, University of Louisville

Anchorage Hilton Map

Coming soon…