

Exposome Data Challenge Event

28-30th April 2021

Wednesday, 28th April 2021 (1st day)

14:30h to 18:30h (CET) meeting

[Day 1 video on Youtube: Keynote speaker Martine Vrijheid on HELIX lessons learned - Topic 1 Effects of mixtures of exposures - Topic 2 Multi-omic data integration](#)

Keynote lecture

14.30-14.35 CET time / 8.30-8.35am EST

Event Opening

Léa Maitre, ISGlobal

14.35-15.00 CET time / 8.35-9am EST

HELIX Lessons learned

Martine Vrijheid, ISGlobal

Topic 1: Effects of mixtures of exposures – Chair: Charline Warembourg, Inserm 1085

15.00-15.15 CET time / 9-9.15am EST

[Quantifying Exposome-Health Associations with Bayesian Multiple Index Models](#)

Glen McGee, University of Waterloo

15.15-15.30 CET time / 9.15-9.30am EST

[A novel penalized LASSO type Bayesian Weighted Quantile Sum Regression Approach for Exposome-outcome effect estimation](#)

Vishal Midya, Icahn School of Medicine at Mount Sinai

15.30-15.45 CET time / 9.30-9.45am EST

[Exposome Health Association Studies Using Bayesian Treed Distributed Lag Mixture Models](#)

Ander Wilson, Colorado State University

15.45-16.00 CET time / 9.45-10am EST

[Evaluating a Mixture Effect of Perinatal Environmental Exposures on Childhood BMI Using Weighted Quantile Sum \(WQS\) Regression](#)

Chris Gennings, Icahn School of Medicine at Mount Sinai

16.00-16.15 CET time / 10-10.15am EST

[Synergistic Interaction Detection](#)

Shounak Chattopadhyay, Duke University

16.15-16.30 CET time / 10.15-10.30am EST

[Exposome Analysis with Bayesian Group Index Regression](#)

Matthew Carli, Virginia Commonwealth University

16.30-16.45 CET time / 10.30-10.45am EST

Discussion

Break - networking

16.45-17.00 CET time / 10.45-11am EST ...

Topic 2: Multi-omic data integration – Chair: Juan Ramón González, ISGlobal

17.00-17.15 CET time / 11-11.15am EST

[A new statistical graph model to systematically study associations between multivariate exposome data and multivariate metabolomics data](#)

Qiong Wu, University of Maryland, College Park

17.15-17.30 CET time / 11.15-11.30am EST

[Pre- and postnatal urban exposure patterns and childhood neurobehavior](#)

Jaime Benavides, Columbia University

17.30-17.45 CET time / 11.30-11.45am EST

[Latent unknown clustering integrating multi-omics data \(LUCID\) with phenotypic traits](#)

Nikos Stratakis, University of Southern California

17.45-18.00 CET time / 11.45-12pm EST

[Integrative Analysis and Visualization of Exposome and Transcriptome data](#)

Ziyue Wang, National Institute of Environmental Health Sciences

18.00-18.30 CET time / 12-12.30pm EST

Discussion

Thursday, 29th April 2021 (2nd day)

14:30h to 18:30h (CET) meeting

[Day 2 video on Youtube: Keynote speaker Marc Chadeau-Hyam on Exposome analytics - Topic 3 Biomedical data science & machine learning - Topic 4 Causal modelling, mediation and triangulation](#)

Keynote lecture

14.30-15.00 CET time / 8.30-9am EST

Exposome analytics: successes and current challenges

Marc Chadeau-Hyam, Imperial College London, United Kingdom

Topic 3: Biomedical data science & machine learning – Chair: Paula Petrone, ISGlobal

15.00-15.15 CET time / 9-9.15am EST

[Clustering Exposure Trajectories to Classify Phenotypic Characteristics](#)

Sejal Mistry, University of Utah

15.15-15.30 CET time / 9.15-9.30am EST

[Exposure Continuum Mapping for predicting health and disease in exposome studies](#)

John Pearce, Medical University of South Carolina

15.30-15.45 CET time / 9.30-9.45am EST

[Deep-Exposome: A Predictive and Interpretative Deep Neural Network Ensemble for Exposome Data](#)

Fei Zou, University of North Carolina, Chapel Hill

15.45-16.00 CET time / 9.45-10am EST

[Leveraging machine learning and explainable AI to better understand exposomic data](#)

Jean-Baptiste Guimbaud, LIRIS-ISGlobal

16.00-16.15 CET time / 10-10.15am EST

[Using causal random forest to determine exposure environments with high sexual dimorphisms](#)

Alejandro Caceres, ISGlobal

16.15-16.30 CET time / 10.15-10.30am EST

[Searching for the risk factors for childhood overweight - A novel approach to identify the most relevant child BMI-associated exposures](#)

Lucile Broséus and Paulina Jedynek, Université Grenoble Alpes

16.30-16.45 CET time / 10.30-10.45am EST

Discussion

Break - networking

16.45-17.00 CET time / 10.45-11am EST ...

Topic 4: Causal modelling, mediation and triangulation – Chair: Léa Maitre, ISGlobal

17.00-17.15 CET time / 11-11.15am EST

[Omics Modules for Exposome-Health Associations \(OMEXA\)](#)

Carl Brunius, Chalmers University of Technology

17.15-17.30 CET time / 11.15-11.30am EST

[Decoding unknown links between the exposome and health outcomes by multi-omics analysis](#)

Xiaotao Shen, Stanford University

17.30-17.45 CET time / 11.30-11.45am EST

[Meet-in-the-middle meets multi-omics: a strategy to identify molecular signatures of environmental drivers of childhood BMI](#)

Congrong Wang, Hasselt University

17.45-18.00 CET time / 11.45-12pm EST

[Application of a novel method for mediation analysis in the exposome context](#)

Daniela Zugna, University of Turin

18.00-18.15 CET time / 12-12.15pm EST

[Molecular Gatekeepers bridge the exposome and health](#)

Miao Yu, Icahn School of Medicine at Mount Sinai

18.15-18.30 CET time / 12.15-12.30pm EST

Discussion

Friday, 30th April 2021 (3rd day)

14:30h to 17:00h (CET) meeting

[Day 3 video on Youtube: Topic 5 Other methods - concluding remarks - winners](#)

Topic 5: Other methods – Chair: Xavier Basagaña, ISGlobal

14.30-14.45 CET time / 8.30-8.45am EST

[Multi-Outcome Meshed Gaussian Processes on Projected Inputs for Scalable Inference with Exposome Data](#)

Michele Peruzzi, Duke University

14.45-15.00 CET time / 8.45-9am EST

[Missingness pattern and exposure selection for mixed-type exposome data](#)

Sanjib Basu, University of Illinois at Chicago

15.00-15.15 CET time / 9-9.15am EST

[Estimating the effects of exposome and their interactions](#)

Hua Yun Chen, University of Illinois at Chicago

15.15-15.30 CET time / 9.15-9.30am EST

[Air pollution and childhood cognition: a g-computation approach to assess mediation by a mixture of metals](#)

Charlie Roscoe and Hari Iyer, Harvard University

15.30-15.45 CET time / 9.30-45am EST

Discussion

Break - networking

15.45-16.15 CET time / 9.45-10.15am EST ...

Concluding remarks and prize awards – Chair: Xavier Basagaña, ISGlobal

16.15-16.30 CET time / 10.15-10.30am EST

Concluding remarks

Xavier Basagaña, ISGlobal

16.30-16.45 CET time / 10.30-10.45am EST

Prize awards

