IMPS 2024
Prague, Czech Republic
July 16-19, 2024 • Short Courses July 15
Prague Map

- Prague University of Economics and Business
- Carolinum
- Pilsner Pub Municipal House
- Boat Cruise on Vltava River
- Hilton Old Town Prague Hotel
**IMPS Registration Hours of Operation**

**VŠE Building**  
Atrium of the RB Building  
nám. Winstona Churchilla 1938/4, 130 00 Praha 3 - Žižkov

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<th>Monday, July 15:</th>
<th>Tuesday, July 16:</th>
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<th>Thursday, July 18:</th>
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<td>8:00 a.m. - 5:00 p.m.</td>
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### Monday • July 15

#### RB 209

**9:00 a.m. - 5:00 p.m.**  
**Short Course #1:**  
**Structural equation models for categorical outcomes using lavaan**  
Speakers: Dr. Terrence D. Jorgensen

- 9:00 a.m. - 10:30 a.m. • Short Course  
- 10:30 a.m. - 10:50 a.m. • Refreshment Break  
- 10:50 a.m. - 12:00 a.m. • Short Course  
- 12:00 a.m. - 1:30 p.m. • Lunch Break  
- 1:30 p.m. - 3:00 p.m. • Short Course  
- 3:00 p.m. - 3:20 p.m. • Refreshment Break  
- 3:20 p.m. - 5:00 p.m. • Short Course

#### RB 210

**9:00 a.m. - 5:00 p.m.**  
**Short Course #2:**  
**Tools of machine learning in psychometrics**  
Speakers: Dr. Rudolf Debelak & Dr. David Goretzko

- 9:00 a.m. - 10:30 a.m. • Short Course  
- 10:30 a.m. - 10:50 a.m. • Refreshment Break  
- 10:50 a.m. - 12:00 a.m. • Short Course  
- 12:00 a.m. - 1:30 p.m. • Lunch Break  
- 1:30 p.m. - 3:00 p.m. • Short Course  
- 3:00 p.m. - 3:20 p.m. • Refreshment Break  
- 3:20 p.m. - 5:00 p.m. • Short Course

#### RB 211

**Part 1: 9:30 a.m. - 12:30 p.m.**  
**Part 2: 2:00 p.m. - 5:00 p.m.**  
**Short Course #3:**  
**Planning and conducting simulation studies in R**  
Speakers: Prof. Carolin Strobl & Dr. Mirka Henninger

- 9:30 a.m. - 11:00 a.m. • Short Course (Part 1)  
- 11:00 a.m. - 11:20 a.m. • Refreshment Break  
- 11:20 a.m. - 12:30 p.m. • Short Course (Part 1)  
- 12:30 p.m. - 2:00 p.m. • Lunch (on your own)  
- 2:00 p.m. - 3:30 p.m. • Short Course (Part 2)  
- 3:30 p.m. - 3:50 p.m. • Refreshment Break  
- 3:50 p.m. - 5:00 p.m. • Short Course

#### RB 212

**9:30 a.m. - 12:30 p.m.**  
**Short Course #4:**  
**Computerized adaptive testing and multistage testing with R**  
Speakers: Dr. Duanli Yan & Dr. Alina A. von Davier

- 9:30 a.m. - 10:45 a.m. • Short Course  
- 10:45 a.m. - 11:00 a.m. • Refreshment Break  
- 11:00 a.m. - 12:30 p.m. • Short Course
Tuesday • July 16

Vencovského aula

Welcome: Prof. David Kaplan, Dr. Patricia Martinková, Prof. Jakub Fischer, Dean of the Faculty of Informatics and Statistics, VŠE

Keynote Address: Prof. Adrian E. Raftery

Statistical inference with model uncertainty
Chair: Prof. David Kaplan

Vencovského aula

Refreshment Break

Atrium RB

Short presentations by:
Richard Feinberg
Terence Jorgensen
Anna Lohmann
Björn Siepe
Anders Skrondal
Carolin Strobl

Invited Panel: Quality standards for simulation studies in psychometrics
Chair: Prof. Steffi Pohl

Session: Problems in mediation analysis
Chair: Prof. Ying Yuan

Bayesian latent class dynamic mediation model
Prof. Ying Yuan

Relative importance analysis in multiple mediator models
Dr. Xin Gu

Assessing heterogeneous treatment effects in Bayesian longitudinal mediation models
Ziwei Zhang

Causal mediation analysis for binary outcomes with asymmetric link functions
Yuji Tsubota

Symposium: Asymmetric item response models
Chair: Dr. Jay Verkuilen
Discussant: Dr. Carl Falk

Heywood cases in asymmetric IRT
Dr. Jay Verkuilen

Bayesian model averaging of asymmetric IRT models in small samples
Fabio Setti

Parsimonious item response theory modeling with different link functions
Dr. Wes Bonifay

Unipolar IRT and vocabulary development
Prof. Daniel Bolt

Session: Topics in latent variable estimation
Chair: Dr. Bjorn Anderson

Uncertainty quantification for latent variable selection in high dimensional exploratory factor analysis
Mr. Xinyi Liu

Pairwise stochastic approximation for confirmatory factor analysis of categorical data
Dr. Giuseppe Alfonsetti

Generalized linear latent variable models with nonignorable missing data
Dr. Bjorn Anderson

A two-stage path analysis approach to model interaction effects for congruent measures
Mr. Gangru Zhang

Ability estimation for culturally responsive assessments
Dr. Sandip Sinharay

Session: Topics in reliability
Chair: Victoria Savalei

Maximal reliability coefficients for bifactor models
Victoria Savalei

On the estimation of reliability in knowledge space theory
Prof. Andria Spoto

Reliability in intensive longitudinal studies: a state-space vs. linear mixed model approach
Mr. Tzu-Yao Lin

Estimating reliability for mixed-format tests
Ye Yuan

Standard errors and null-hypothesis significance tests for reliability coefficients
Andries van der Ark

Symposium: Advancements in structural equation modeling (SEM): model fit, parameter selection, and measurement invariance
Chair: David Gorrosti

Sensitivity of model fit indices in SEM to underfactoring
Dr. Melanie Visser Partsch

Projection predictive variable selection for Bayesian regularized structural equation modeling
Dr. Sara van Erp

Exploring measurement non-invariance with exploratory factor analysis trees and exploratory graph analysis trees
David Gorrosti

Measurement invariance in within-person latent structure for dynamic factor models
Dr. Ai Ye

A causal framework for the comparability of latent variables
Philipp Stermer

Session: Developments in IRT
Chair: Prof. Mark Wilson

A new measure and an old measure of person fit
Mr. Horacio Rocha

Detection of local dependence within PCs through recent L1-penalization approaches
Mr. Can Gürer

Investigating the invariant ordering of clustered items using nonparametric IRT
Dr. Lotty Koopman

Integrating observations and test scores: a fixed-random item model
Prof. Mark Wilson

Symposium: New developments in dynamic modeling
Chair: Dr. Sy-Min Chow

Analytic standard errors for latent Gaussian discrete-valued multivariate time series
Mr. Christopher Crawford

Extending fit indices from structural equation models to state space models
Mr. Hyunggeun Oh

Reliability in multilevel continuous time modeling
Xiaoque Xiong

Standard errors and confidence intervals for total, direct, and indirect effects in continuous-time models
Dr. Sy-Min Chow

Session: Topics in factor analysis
Prof. Amanda Fairchild

Hierarchical relation among minimum rank FA, PCA, and prevalent FA
Prof. Kohesi Adachi

The partially oblique rotation for exploratory factor analysis
Prof. Marcos Jiménez

Overcoming Heywood cases in factor analysis: a maximum penalized likelihood approach
Mr. Philipp Starzinger

Does choice of nonnormal data generation algorithm affect simulation results?
Prof. Amanda Fairchild

Session: Problems in mediation analysis
Chair: Prof. Ying Yuan

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Does choice of nonnormal data generation algorithm affect simulation results?
Prof. Amanda Fairchild
VENCOVSKÉHO AULA

Invited Speaker: Dr. Cécile Prout-Lima
Continuous-time latent variable modeling of measurement scales in health studies: applications to the multiple-system atrophy progression
Chair: Prof. Silvia Bianconcini

Session: Psychometric applications in psychology
Chair: Dr. Jenn-Yen Tan
Decoding intelligence: investigating the structure of intelligence
Ms. Laura Maria Fetz
An investigation the context effect in the multidimensional forced-choice personality measurement
Dr. Kyousuke Bunji
Dynamic and bidirectional associations between physical activity, smartphone addiction and state self-esteem
Yang Cui
Predicting onset of child positive and negative affect and behavior
Dr. Jenn-Yen Tan
Developing a framework for testing dyadic associations using psychodyads and permutations
Chiara Carlier

Session: Topics in categorical data analysis
Chair: Prof. Silvia Bianconcini
Ordinal latent space item response models for Likert scale assessments
Ludovica De Carolis
Implications of alternative parameterizations in structural equation models for longitudinal categorical variables
Prof. Silvia Bianconcini
Similarity measures between two sets of binary vectors
Prof. Sophia Vanbelle
Fitting and testing log-linear item response models with known support
Dr. David Hessen

Symposium: Beyond ignorability: advancing with partial identifiability in psychometrics
Chair: Dr. Eduardo Alarcon-Bustamante
A partial identifiability approach for analyzing regression functions with missing data in the outcome
Dr. Jorge Gonzalez
On the impact of missing outcomes in predictive capacity of selection tests studies
Dr. Inda Varas
Assessing the marginal effect under partial observability in a selection context
Dr. Eduardo Alarcon-Bustamante

SYMPOSIUM: STATISTICAL LEARNING APPROACHES TO PSYCHOMETRIC CHALLENGES
Chair: Dr. Dylan Molenaar
Autoencoders for amortized joint maximum likelihood estimation of item response theory models
Dr. Dylan Molenaar
One shape may not fit all: detecting differences in trajectories using GAM trees
Dr. Marjolein Fokkema
Affect modeling with wavelet-based time series and statistical learning methods
Dr. Sy-Miin Chow
Handling missing data in variational autoencoder based item response theory
Mr. Karel Waldkamp

SYMPOSIUM: HETEROGENEITY IN REPEATED MEASURES
Chair: Prof. Timothy Brick
Improving Boruta feature selection in multivariate framework
Ms. Priyanka Paul
Are general truths generally true? Accommodating meaningful heterogeneity in dynamic processes
Dr. Zachary Fisher
Making extremely heterogeneous person-specific dynamics so happy together: state space mixtures all the way down
Prof. Michael Hunter
Unsupervised model construction in continuous-time
Jonathan Park

SYMPOSIUM: THEORY CONSTRUCTION METHODS
Chair: Prof. Jason Nak
Text mining systematic reviews: new directions for qualitative research synthesis
Mr. Raisoul Norouzi
AI-assisted theory construction
Ms. Wasiq Ahmad Khan
A theory construction framework for networks
Ms. Adam Finnemann
PsychoModels and PsychoFacts: a platform for formal theory development in psychological science
Mr. Jason Nak
Welcome Reception
Prof. Milena Králičková, Rector of the Charles University; Prof. Antonín Jančařík, Dean of the Faculty of Education

6:30 p.m. - 9:00 p.m. • Enjoy delightful array of hors d’oeuvres and cocktails in the ground floor.
7:30 p.m. • Welcome remarks in the courtyard.
6:45 p.m. - 7:10 p.m. and 8:15 p.m. - 8:40 p.m. • Come to listen to organ and trumpets in the Great Hall located on the first floor.
**Wednesday • July 17**

### Vencovského aula

**Invited Panel:**

Foundational competencies in educational measurement: an NCME task force consensus  
Chair: Prof. Andrew Ho

Andrew Ho (Chair/Presenter)  
Harvard University

Ying (Alison) Chen (Presenter)  
University of Notre Dame

David Thissen (Presenter)  
The University of North Carolina at Chapel Hill

David Torres Irribarra (Presenter)  
Pontificia Universidad Católica de Chile

Terry Ackerman (Discussant)  
University of Iowa

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**Session: Using process data to understand, assist, and enhance assessment**
Chair: Dr. Mengxiao Zhu

**Symposium:** Using process data to understand, assist, and enhance assessment

- Linking writing process data to writing quality  
  Hong Jiao

- Explaining performance gaps with problem-solving process data via LCMA  
  Sunbeom Kwon

- Scoring of argumentative writing using keystroke logs and deep learning models  
  Dr. Mengxiao Zhu

- Selecting and analyzing eye movement features for the screening of reading disorders in children  
  Ms. Mingming Hu

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**Session: Applications of IRT**
Chair: Dr. Sjoerd Ebisch

**Symposium:** Applications of IRT

- Comparing ERT models for mathematics and ELA across grades 3-8  
  Dr. Magdalena Bento-Fearn

- Using item response theory to investigate whether rater assessments measure rater quality: is there such a thing as a "correct" rating?  
  Dr. William Belzak

- Selection of eye tracking stimuli via item response theory  
  Benjamin Graves

- Modernizing high school assessments in Albania: exploring item response theory in state matric exams  
  Prof. Enesata Gjika

- Enhancing scoring procedures for the divergent association task: leveraging sequential scoring and IRT paradigm  
  Dr. Daniel Dostal

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**Session: Bayesian issues in IRT**
Chair: Prof. Seock-Ho Kim

**Symposium:** Bayesian issues in IRT

- A Bayesian approach for joint modeling of rankings and ratings  
  Prof. Elena Erosheva

- Bayesian nonparametric HETOP models for rating data  
  Dr. Giuseppe Mignemi

- Some posterior standard deviations of the graded response model  
  Prof. Sjoerd Ebisch

- Estimation of IRT models using NUTS under non-normal distributions  
  Dr. Rehab AlHakmani

- A Bayesian model to represent ambiguity and atypical behaviour in item response theory  
  Mario Angelelli

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**Session: Advancements in conducting observational intensive longitudinal studies**
Chair: Dr. Sigert Ariens

**Symposium:** Advancements in conducting observational intensive longitudinal studies

- Design, data, and analysis  
  Jordan Nevil

- Preprocessing ESM data: a framework, tutorial website, R package, and reporting templates  
  Jordi Neuvil

- Episode-contingent experience-sampling designs for accurate estimates of autoregressive dynamics  
  Dr. Sigert Ariens

- Consequences of missing data types of the multilevel AR(1) model  
  Mr. Benjamin Simsa

- Combining day-to-day dynamics with day-of-week effects and weekly dynamics using seasonal ARIMA models  
  Mr. Mohammadhossein Manuel Haqiqatkhah

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**Session: Using causal inference theory for designing and analyzing replication studies**
Chair: Prof. Steffi Pohl

**Symposium:** Using causal inference theory for designing and analyzing replication studies

- A causal replication framework for systematic replication efforts  
  Peter M. Steinke

- Evaluating coaching supports in teacher education: A replication study approach  
  Qing Liu

- A statistical framework for investigating causes of non-replicability  
  Steffi Pohl

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**Session: Using process data to understand, assist, and enhance assessment**
Chair: Prof. David Kaplan

**Symposium:** Using process data to understand, assist, and enhance assessment

- Career Lifetime Achievement Award: Prof. David Thissen  
  A selective intellectual history of differential item functioning analysis in item response theory and factorial invariance in factor analysis  
  Chair: Prof. David Kaplan

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**Venue:**

- **RB 101**
  - Symposium: Latent variable models for complex data structures  
    Chair: Dr. Michele Battauz
  - Joint modelling of students’ academic performance and dropout  
    Prof. Michele Battauz
  - Cheating detection based on response times in CAT  
    Luca Bungaro
  - A new factor mixture model to detect aberrant respondents  
    Niccolo Cao
  - Latent variable models for panel data: comparison of estimation methods  
    Dr. Lucia Guastadisegni
  - Scalable M-estimation for GLLVM  
    Prof. Maria-Pia Victoria-Feser

- **RB 209**
  - Symposium: Quantitative methods for assessing the impact of physical environment on health  
    Chair: Dr. Sjoerd Ebisch
  - Predicting mental health through satellite images  
    Dr. Simona Di Pinio
  - Assessing recovery after high-intensity anaerobic exercise: a comparison between physiological and psychological measures  
    Dr. Luca Lazzaro
  - Validation of the “restorativeness at work scale” (R@WS)  
    Prof. Margherita Brondino

- **RB 210**
  - Session: Applications of IRT  
    Chair: Dr. Daniel Dostal
  - Comparing ERT models for mathematics and ELA across grades 3-8  
    Dr. Magdalena Bento-Fearn
  - Using item response theory to investigate whether rater assessments measure rater quality: is there such a thing as a “correct” rating?  
    Dr. William Belzak
  - Selection of eye tracking stimuli via item response theory  
    Benjamin Graves
  - Modernizing high school assessments in Albania: exploring item response theory in state matric exams  
    Prof. Enesata Gjika
  - Enhancing scoring procedures for the divergent association task: leveraging sequential scoring and IRT paradigm  
    Dr. Daniel Dostal

- **RB 211**
  - Session: Bayesian issues in IRT  
    Chair: Prof. Seock-Ho Kim
  - A Bayesian approach for joint modeling of rankings and ratings  
    Prof. Elena Erosheva
  - Bayesian nonparametric HETOP models for rating data  
    Dr. Giuseppe Mignemi
  - Some posterior standard deviations of the graded response model  
    Prof. Sjoerd Ebisch
  - Estimation of IRT models using NUTS under non-normal distributions  
    Dr. Rehab Alhakmani
  - A Bayesian model to represent ambiguity and atypical behaviour in item response theory  
    Mario Angelelli

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**Refreshment Break**

**Venue:**

- **Atrium RB**

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**Venue:**

- **Vencovského aula**

**Career Lifetime Achievement Award:** Prof. David Thissen  
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Chair: Prof. David Kaplan

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**Venue:**

- **VŠE Menza**

**Career Lifetime Achievement Award:** Prof. David Thissen  
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Chair: Prof. David Kaplan

**Lunch (On Your Own)**
**WEDNESDAY CONTINUED**

1:00 p.m. - 2:15 p.m.

**NB A**

Session: Topics in IRT 1
Chair: Dr. Gabriel Wallin

Individual salience weights in the multidimensional generalized graded unfolding model
Prof. James Roberts

Item response function variability: a strategy for model comparison research
Mr. Xing Chen

Refinement of the matching item response model: a shift to generative modeling
Mr. Kentaro Fukushima

An explanatory hyperbolic cosine model with categorical covariates
Dr. Jue Wang

A taxonomy of unfolding models
Prof. George Engelhard

**NB B**

Symposium: Formal theories of psychological phenomena
Chair: Mr. Jesse Boot

Improving treatments for mental disorders using computational models
Dr. Jonas Haslbeck

From budworms to behaviors: bridging the gap between individual psychology and social contexts in addiction
Mr. Jesse Boot

Towards a general modeling framework of resource competition in cognitive development
Ms. Jill de Ron

Integrating intraindividual and interindividual phenomena in psychological theories
Prof. Denny Borsboom

**NB C**

Session: Novel approaches to IRT
Chair: Prof. Francis Tuerlinckx

Geometry and psychometrics
Prof. Francis Tuerlinckx

Regularized Gaussian variational estimation for detecting interactional differential item functioning
Mr. He Ran

Bayesian diagnostic classification using doubly bounded visual analogue scaling
Ms. Hsin Kao

Likelihood-free estimation of IRT models in small samples: A neural networks approach
Dr. Dmitry Belov

A differential equation framework for the derivation of item response functions
Prof. Yvonnick Noel

**Vencovského aula**

Invited Panel: Paths to the future: A panel discussion of the future of SEM
Chair: Prof. Steven Boker

Participants include:
- Steven Boker, University of Virginia
- Timothy Brick, Pennsylvania State University
- Zachary Fisher, Pennsylvania State University
- Michael Hunter, Pennsylvania State University
- David Kaplan, University of Wisconsin - Madison
- Alberto Maydeu-Olivesas, University of South Carolina
- Mike Neale, Virginia Commonwealth University
- Yves Rosseel, University of Ghent
- Timo von Oertzen, Thomas Bayes Institute, Berlin

2:30 p.m. - 3:15 p.m.

**NB D**

Symposium: Quantifying replication success: correspondence measures for replication studies
Chair: Dr. Vivian Wong

Implementation of the correspondence test as an S-curve
Patrick Sheehan

How best to quantify replication success?
Prof. Don van Ravenzwaaj

A systematic comparison of correspondence measures for prospective replications
Dennis Kondzic

Assessing replication success over multiple replication study results
Dr. Vivian Wong

**NB**

Session: Topics in statistical/machine learning
Chair: Dr. Qiwei He

Estimating latent variance in variational autoencoders parameterization of Rasch models
Mr. Denis Federiaki

Unsupervised detection of random responding for Likert-type inventories with varying numbers of response categories
Mr. Michael John Ilagan

Predicting missing response with BERT model in process data
Dr. Qiwei He

Deep-learning methods for multiple imputation in large-scale survey assessments
Dr. Usama Ali

Exploring classic machine learning models and large language models in detecting ChatGPT generated essays in writing assessments
Mr. Haowei Hua

**RB 209**

Session: Topics in clustering
Chair: Dr. Magdalen Beiting-Parrish

Ordinal cognitive diagnosis in nonparametric framework
Prof. Youn Seon Lim

Sparse convex optimal discriminant clustering
Ms. Mayu Hiraishi

Generalized Bayesian method for diagnostic classification models
Dr. Kazuhiro Yamaguchi

Modeling examinee heterogeneity within performance classification using generalized low rank models
Dr. Magdalen Beiting-Parrish

**RB 210**

Session: Statistical topics
Chair: Dr. Katrin Jansen

Multivariate location-scale models for meta-analysis
Dr. Katrin Jansen

Bayesian modeling of data with ceiling or floor effects
Ms. Ruoxuan Li

Marginal and conditional posterior predictive p-values for ordinal models
Ms. Ellen Fitzsimmons

Use of external moment information via externally informed models
Mr. Martin Jann

The application of a metaheuristic algorithm when developing a test with a pre-defined value of the cut-off score
Lenka Firtova

**Vencovského aula**

Invited Speaker: Dr. Patrícia Martinková
Computational aspects of psychometric methods and beyond
Chair: Prof. Irini Moustaki

2:30 p.m. - 3:15 p.m.

**RB 211**

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Lenka Firtova

3:15 p.m. - 3:45 p.m.

**Atrium RB**

Refreshment Break
Graduate Student Dinner Mixer
This event is exclusively for graduate students and will be hosted by the Psychometric Society.

Vencovského aula
Early Career Award: Prof. Maarten Marsman
From network psychometrics to Bayesian graphical modeling
Chair: Prof. Daniel Bolt

Atrium RB

Poster Session
Presenters will be available at posters from 5:00 p.m. - 6:15 p.m. Click here to view the poster list.

Pivnice Obecní dům (Pilsner Pub Municipal House) | Address: náměstí Republiky 1090/5, 111 21, Praha 1 – Staré Město

Graduate Student Dinner Mixer
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**Thursday • July 18**

### Vencovského aula

#### Session: Longitudinal latent class and CDM models
**Chair:** Jonathan Templin

- **Dr. Yingshan Chen:** 
  Discovery of attribute hierarchies in longitudinal cognitive diagnostic models.
- **Ms. Yi Jin:** 
  Regularized variational Bayes for Q-matrix inference in cognitive diagnosis models.
- **Jonathan Templin:** 
  A wrinkle in the IRT theta continuum: exploring DCM classification.
- **Dr. Zsuzsa Bakk:** 
  Stepwise estimation approaches of complex latent class models: best practices.

### RB 101

- **Session: Novel statistical approaches to tackle challenges in intensive longitudinal data**
  **Chair:** Marieke Schreuder (Belgium) - KU Leuven
  - Improving the estimation of sample heterogeneity in multivariate dynamic processes through feature selection.
  - Person-specific updating approach to deriving EWMA control limits in cases of few in-control observations.
  - Training window selection methods for passive sensing.

### NB A

- **Session: Theoretical and applied issues in validity**
  **Chair:** Keith Markus
  - Notes toward a grammar of validity arguments.
  - Integrating IRT and GT via a four-building-block approach.
  - Mitigating social desirability using item quadruplets and MIMIC.

### NB B

- **Session: Bayesian stacking, trees, and predictive modeling**
  **Chair:** Prof. Sierra Bainter
  - On the improvement of predictive modeling using Bayesian stacking and posterior predictive checking--an example of modeling gender inequality in reading using PISA 2018.
  - Incorporating sparsity into Bayesian stacking procedures.
  - Bayesian posterior predictive checks to analyze flexible distributional models.
  - Bayesian treed regression for estimating heterogeneous trajectories of test scores in large-scale educational data.
  - Variable selection with missing data using Bayesian additive regression trees.

### NB C

- **Session: Psychometric methods for analysis of wellbeing in the context of digital technologies**
  **Chair:** Dr. Patrícia Martinková
  - Dynamic systems modeling of human behaviors to improve proactive healthcare.
  - Dynamic systems modeling of human behaviors to improve proactive healthcare.
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### Atrium RB

- **Refreshment Break**

### Vencovského aula

- **Keynote Speaker: Prof. David MacKinnon**
  The investigation of mediating processes as a measurement challenge.
  **Chair:** Prof. David Kaplan
### Session: Problems in cognitive diagnostic modeling
Chair: Dr. Leah Feuerstahler

- Latent variable modeling for unipolar constructs in health sciences
  Dr. Edward Ip
- The application of IRT to traumatic brain injury research: some promise and challenges
  Dr. Brooke Magnus
- Mixture item response theory to quantify cumulative environmental exposure burden
  Dr. Shelley Liu
- An explanatory IRT model for toxicity-weighted environmental exposure burden scores
  Dr. Leah Feuerstahler

### Session: Topics in factor analysis
Chair: Dr. Alexis Georgeson

- Covariate-adjusted generalized factor analysis with application to testing fairness
  Jing Ouyang
- A factor analytic analogue for summed score EAPs
  Dr. Alexis Georgeson
- Comparing item selection in regularized factor analysis and network models
  Ms. Jiaying Chen
- Multilevel factor mixture modeling: a simulation study
  Dr. Eunsook Kim
- Pseudo-factor analysis of embedding similarity matrices
  Nigel Guenole

### Session: Using structural equation models to analyze round-robin data from social networks
Chair: Dr. Terrence Jorgensen

- Multiple constructs multiple indicators social relations models with and without roles
  Dr. Fridjof W. Nusseck
- A correlated traits correlated (methods – 1) multitrait-multimethod model for augmented round-robin data
  Dr. David Jendryczko
- Toward a general multivariate framework for social network data: An overview of estimation methods for structural social-relations models
  Dr. Terrence Jorgensen
- Incorporating level-specific covariates in structural equation models of social-network data
  Ms. Additi Manoj Bhangale

### Session: Differential item functioning
Chair: Dr. Heining Cham

- Detecting non-uniform differential item functioning in latent variable interaction framework
  Dr. Heining Cham
- Extending the cluster approach to differential item functioning in polytomous items
  Mr. Martijn Schoenmakers
- Advancing polytomous DIF detection with the residual DIF framework
  Dr. Hwanggyu Lim
- Assessing differential step functioning for polytomous items with scale purification
  Dr. Ya-Hui Su

### Symposium: Recent advances in non-Bayesian informative hypothesis evaluation
Chair: Dr. Rebecca Kuiper

- Applying the informative hypothesis approach to media effects
  Ms. Nikol Kreidlova
- Theory-based hypothesis evaluation using information criteria
  Dr. Rebecca Kuiper
- Bayesian evaluation of N=1 studies
  Prof. Herbert Hoijtink
- Making nomological networks confirmatory using QORCA
  Mr. Petr Palasek
- Benchmarks and cut-off norms: necessary evils or questionable science inducers?
  Linh de Vreugt
- Emotions under control? The relationship between emotionality and cognitive control reverse if event-unpleasantness is increased within individuals
  Mr. Levente Rónai

### Symposium: Psychometric innovations for adaptive learning systems
Chair: Dr. Maria Bostenova

- A dynamic k value approach for the Elo rating system
  Hanke Vermeiren
- Curious interactions between learners and Elo rating systems
  Dr. Aba Hofman
- Tracking changing abilities in adaptive learning system using response times
  Banus Gargely
- Modeling individual differences in error-induced quitting
  Ms. Annie Johansson

### Session: Graduate Student Research Competition
Chair: Prof. Silvia Cagnone

- Presentations by the following teams:
  - Integrating Generative AIs into Computerized Adaptive Testing
    Diego F. Graha, Diego Iglesias, Marcos Jiménez and Nuria Real-Brioso, Faculty of Psychology, Universidad Autónoma de Madrid
  - A Battle of Wits: Comparing the Capabilities of Generative AI and Humans in Scale Development
    Meltem Ozcan, Winnie W.-Y. Tse, Bengzi Zhang, Department of Psychology, University of Southern California
  - Expanding the Scope of Data Sources in Psychometric Research by Embedding Individual Records using Generative AI
    Shihao Wu, Changyu Cui, Bo Meng, Jing Ouyang, and Zhixue Xu, Department of Statistics, University of Michigan
2:45 p.m. - 4:00 p.m. 

**Session: Dimensionality and IRT**  
Chair: Dr. Chia-Wen Chen

- Beyond confirmatory: dimensionality assessment in forced-choice data  
  Mr. Diego Grafa
- Semi-parametric item factor analysis  
  Dr. Camilo Cardenas
- A bifactor Thurstonian IRT Model for multidimensional forced-choice questionnaires with negative wording effect  
  Dr. Chia-Wen Chen

**Session: Priors in Bayesian models**  
Chair: Dr. Josine Verhagen

- Inferring mastery of math skills over time using power priors  
  Dr. Josine Verhagen
- On the prior effective sample size of normal and Dirichlet priors for threshold parameters  
  Dr. Noah Padgett
- Bayesian power priors in latent variable models with small samples  
  Dr. Lihan Chen
- Zero-and-one-inflated generalized Dirichlet distribution to estimate the order of resource allocation  
  Mr. Taisei Wakai

**Session: Meta-regression trees: three innovations**  
Chair: Prof. Elise Dusseldorp

- Detecting test speededness based on Schwarz information criterion  
  Dr. Jing Lu
- Accounting for rapid guessing in competence estimation in large-scale assessments  
  Eva Zink
- Enhancing tree-based models for detecting test-taking behaviors; integrating response time and process variables  
  Ms. Tamlyn Lahoud
- Bayesian factor mixture modeling with response time for detecting careless respondents  
  Ms. Lijin Zhang
- Modeling careless responding in experience sampling data  
  Miki Nishiyama

**Session: More on AI and machine learning**  
Chair: Dr. Sunmee Kim

- Comparing large-scale assessments with the total survey error approach  
  Dr. Peter van Rijn
- New standards for validating AI-based educational assessments  
  Dr. Hua-Hua Chang
- The standard error of equated test scores  
  Prof. Wim J. van der Linden
- Examining the performance of hybrid and traditional multitaste tests under different conditions  
  Dr. Cagla Alpayar

4:00 p.m. - 4:15 p.m.

**Session: More on AI and machine learning**  
Chair: Prof. Elise Dusseldorp

- Meta-regression trees: three innovations  
  Prof. Elise Dusseldorp
- Introducing multilevel lasso models into value-added assessment for variable selection  
  Ms. Qing Zeng
- AI-based AIG for mathematics within a learning engineering framework  
  Prof. J. Hoont Ryoo
- Automating psychometrics: AI - powered item generation  
  Dr. Kariel Recka
- An introduction to anytime-valid inference in psychology  
  Mark Van Lokeren
- Stop using d' and start using d_a: evidence from empirical data on how to measure sensitivity in recognition memory  
  Prof. Advia Lavi
- Intersectional approaches to understanding heterogeneity of cognition aging: a data-driven exploration  
  Dr. Sunmee Kim
- Score development for the NIH infant and toddler toolbox gaze  
  Dr. Lihua Yao

4:00 p.m. - 6:45 p.m.

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ETS Special Symposium: Psychometric innovations in large-scale survey assessments
Chair: Dr. Duanli Yan
Variable selection techniques for imputation models
Dr. Peter van Rijn
Imputation models for special subpopulations
Dr. Usama Ali
Linking error in large-scale assessments
Dr. Paul Jewsbury

Symposium: From traditional to modern methods for the analysis of multi-item measurements
Chair: Dr. Lubomir Štěpánek and Dr. Adéla Hladká
Discussant: Dr. Gabriel Wallin
Robust inference for traditional item discrimination index
Dr. Lubomir Štěpánek
Innovative iterative algorithms for estimation of item functioning
Dr. Adéla Hladká
Three and four-parameter IRT model in factor analysis framework
Jan Pavleč
Fine-tuning language models to predict item difficulty from wording
Jan Herib
On the identifiability and structural learning of R-RUM models
Iván Pérez

Session: Topics in IRT 3
Chair: Dr. Ben Domingue
Combining item responses and paired comparisons in small sample contexts
Dr. Nathan Zouani
Modeling process data with explanatory item response models
Dr. Susanne Frick
A mixture-IRT model for carless responding with flexible assumptions
Inna Uglanova
The item response warehouse (IRW)
Dr. Ben Domingue
Standardized person-fit statistics for tests with polytomous items
Prof. Kyle Gormley

Session: Psychometric applications to education
Chair: Dr. Diego Carrasco
Multilevel synthesis of composite cross-classified event scores as a psychometric approach for EdTech
Dr. Dmitry Abbakumov
Latent logistic regression analysis of background characteristics on digital literacy
Dr. Qianru Liang
Accounting for ceiling effects on polytomous responses. An illustration with gender equality endorsement.
Dr. Diego Carrasco
Score-difference-at-risk (SDaR): using risk metrics to anticipate negative impact.
Dr. Sergio Araneda

Session: Topics in machine learning
Chair: Dr. Youmi Suk
An interpretable cognitive diagnostic model based on XGBoost and shap
Ms. Bhavana Srirangam
Understanding of measurement invariance within a SEMtree framework
Ms. Chang Nie
Using conditional tabular generative adversarial networks for process data generation in Monte Carlo simulation studies
Dr. Youmi Suk
Unveiling competencies for efficient AI utilization: a psychometric perspective
Ms. Bhavana Srirangam

Invited Speaker: Dr. Maria Bolsinova
Rating systems for measurement in adaptive learning systems: challenges and solutions
Chair: Prof. Maarten Marsman

Invited Speaker: Prof. Peter Halpin
Using robust scaling to address DIF and DTF in latent variable models
Chair: Prof. David Thissen
<table>
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<th>Time</th>
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<th>Session</th>
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| 11:30 a.m. - 12:45 p.m. | RB 101 | Symposium: User beware - emerging evidence that survey item calibration and scoring decisions can introduce substantial bias into growth mixture model results  
Chair: Dr. Veronica Cole  
Latent trajectory or measurement artifact? Understanding the effects of unmodeled response styles on growth mixture modeling results.  
Dr. Veronica Cole  
Why producing unbiased survey scores for use in growth mixture models is almost impossible: a few illustrations  
Dr. James Soland  
Investigating the sensitivity of growth mixture model results to conditioning scoring decisions on time-invariant covariates  
Stephan Tavares |
|        | NB A      | Session: Applications of longitudinal data analysis  
Chair: Dr. Soojin Park  
Comparing trajectories of school-to-work transitions using latent transition analysis  
Dr. Tomasz Zoltak  
Identifying subject heterogeneity in longitudinal brain connectivity patterns with clusterwise-IVA  
Dr. Tom Wilderjans  
Ability tracking for intelligent tutoring systems  
Mr. Karl Sigfrid  
Decomposing social disparities through various interventions: incorporating simulation-based sensitivity analysis  
Dr. Soojin Park |
|        | NB B      | Session: Topics in structural equation modeling  
Chair: Dr. Graham Rifenbark  
Recursive partitioning of continuous-time structural equation models  
Dr. Pablo F. Canicer  
Evaluating multigroup structural equation modeling with exploratory measurement models  
Ms. Jennifer Dang Guay  
Small sample estimation of structural equation models: a comparison of alternative estimation approaches  
Dr. Graham Rifenbark |
|        | NB C      | Session: Topics in IRT 4  
Chair: Dr. Merve Sarac  
Item compromise and preknowledge detection using response time and distractors  
Dr. Merve Sarac  
Exploratory higher-ordered diagnostic modeling framework for general response types  
Ms. Jia Liu  
Using the multidimensional nominal response model to model faking: the importance of item desirability characteristics  
Mr. Timo Seitz  
A multivariate logit-function for modeling continuous bounded interval responses  
Mr. Matthias Kortf  
Respondent-level change-point detection in educational and psychological testing  
Dr. Gabriel Wallin |
|        | NB D      | Symposium: Methodological advances in Bayesian graphical modeling  
Chair: Ms. Sara Keetelaar  
Testing conditional independence in psychometric networks  
Nikola Sekulovski  
How robust are psychometric networks?  
Ms. Karoline Huth  
Are psychological networks sparse or dense?  
Ms. Sara Keetelaar  
Dynamic conditional networks for intensive repeated data  
Prof. Philippa Rast |
|        | RB 09     | Session: Estimation methods  
Chair: Dr. Yeh-Tai Chou  
Applying Fisher’s method of scoring to estimate ability parameters of the multi-unidimensional pairwise-preference model  
Dr. Yeh-Tai Chou  
Estimating hierarchical drift diffusion models: a comparison of methods  
Ms. Yulu Wu  
Dealing with small-sample biases in AR(1) models: methods for psychological research  
Zhiwei Dou  
Empirical bias-reducing adjustments for item response theory (IRT) models  
Dr. Haziq Jamil  
Estimating high-dimensional latent variable models via minibatch variance-reduced stochastic optimisation  
Mr. Motonori Okia |
|        | RB 209    | Session: Topics in structural equation modeling  
Chair: Dr. Merve Sarac  
Item compromise and preknowledge detection using response time and distractors  
Dr. Merve Sarac  
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Mr. Timo Seitz  
A multivariate logit-function for modeling continuous bounded interval responses  
Mr. Matthias Kortf  
Respondent-level change-point detection in educational and psychological testing  
Dr. Gabriel Wallin |
|        | RB 210    | Session: Topics in IRT 4  
Chair: Dr. Merve Sarac  
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Respondent-level change-point detection in educational and psychological testing  
Dr. Gabriel Wallin |
|        | RB 211    | Session: Psychometric applications to health outcomes  
Chair: Dr. Carl Falk  
Researching response-scale format effects in questionnaires: using the height Inventory  
Dr. Hynek Cigler  
Bot detection: simulations and application in people-centered health measurement surveys  
Dr. Carl Falk  
Cognitive psychometric approach for modeling cognitive aging across ambulatory assessments  
Sharon Kim  
Do psychometrics matter? The effects of psychometrics on depression trial outcomes  
Dr. David Byrne |
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<tbody>
<tr>
<td>12:45 p.m.</td>
<td>VŠE Menza</td>
<td>Lunch (On Your Own)</td>
</tr>
<tr>
<td>2:00 p.m. -</td>
<td>Vencovského aula</td>
<td>Presidential Address: Prof. David Kaplan</td>
</tr>
<tr>
<td>3:00 p.m. -</td>
<td></td>
<td>Probabilistic forecasting with international large-scale assessments: methods for estimating the pace of progress to the United Nations education sustainable development targets Chair: Prof. Denny Borsboom</td>
</tr>
<tr>
<td>3:00 p.m. -</td>
<td>Vencovského aula</td>
<td>Members Meeting</td>
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<tr>
<td>3:30 p.m. -</td>
<td></td>
<td>Awards and Closing Ceremony</td>
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<tr>
<td>6:00 p.m. -</td>
<td>Prague Boats</td>
<td>Closing Banquet Reception &amp; Boat Cruise</td>
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<tr>
<td>10:00 p.m.</td>
<td>Address: Dvořákovo nábř., 110 00 Praha 1 - Josefov, Prague</td>
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- Thank you to the Prague Convention Bureau for the images used in this document. -