M U N I

Annex No. 11 to the MU Directive on Habilitation Procedures and Professor Appointment Procedures

PUBLIC LECTURE EVALUATION

Masaryk University	
Faculty	Faculty of Science
Procedure field	Mathematics – Applied Mathematics
Applicant	Mgr. David Kraus, Ph.D.
Lecture date	March 1, 2022
Lecture topic	Statistical inference for partially observed functional data
Persons present (number)	30
Designated evaluators (board members)	prof. RNDr. Gejza Wimmer, DrSc. (on-site) doc. PaedDr. RNDr. Stanislav Katina, Ph.D. (on-site) doc. RNDr. Eva Fišerová, Ph.D. (on-site)

Course of the lecture

The chairman introduced the members of the habilitation board (three on-site present members, online present member Prof. Siegfried Hoermann, not present Doc. Arnošt Komárek) and the reviewers of the habilitation thesis by David Kraus (online present Doc. Michal Pešta, not present Doc. Daniel Hlubinka, Prof. Philippe Lambert). Then he summarized some important points from David Kraus' CV.

The habilitation talk "Statistical inference for partially observed functional data" discussed first functional data and applications, then background of functional data analysis, and partially observed functional data. Main topics of the talk were functional reconstruction, classification of functional data, hypothesis tests base on bootstrap approximations and confidence regions in context of partial observations.

All parts of the talk were prepared based on David Kraus papers. The first part of the talk was written based on the two papers, original paper in JRSS B (2015) and follow-up paper in Statistics and Probability Letters (2020). Second part of the talk was written based on the paper in Biometrika (2019). And the last part was written based on the paper in Journal of Multivariate Analysis (2019).

Questions from reviewers and the board

1. Prof. Siegfried Hoermann — Is the curve continuous (original, partially observed part vs missing part)? Re-estimation for every curve, how costly is it? When the estimation of the missing part comes in, when you estimate variance operator? In real data, do you have individual part in different places? Is it a problem?
2. Doc. Eva Fišerová — How one can verified Gaussian assumption? Do you think about generalization of the results?
3. Prof. Wimmer — You have discrete observations to create a curve, which method you use for curve estimation?

MUNI

4. Doc. Stanislav Katina — Principal components of curves example — there are three curves for each component. What they represent, point wise confidence intervals, simultaneous confidence intervals or confidence bands?

Conclusion

The lecture delivered by David Kraus, entitled "Statistical inference for partially observed functional data" and delivered as part of the habilitation procedure, demonstrated sufficient scholarly qualifications and pedagogical capabilities expected of applicants participating in a habilitation procedure in the field of Mathematics – Applied Mathematics.

The lecture took place in a hybrid form at 14:00. The above-mentioned members of the board attended the lecture and provided its evaluation. All designated evaluators are familiar with the text of the evaluation and agree with it.

Date: March 1, 2022

prof. RNDr. Gejza Wimmer, DrSc.

doc. PaedDr. RNDr. Stanislav Katina, Ph.D.

doc. RNDr. Eva Fišerová, Ph.D.