UNIFR

UNIVERSITÉ DE FRIBOURG
UNIVERSITÄT FREIBURG

asam
applied statistics and modelling

A Top Data Science Team

The ASAM group (Applied Statistics And Modelling) offers courses in statistics, probability, and applied econometrics. Researches are focused on different and varied fields in applied statistics and econometrics, e.g. survey statistics or statistical learning methods. We are regularly involved in projects such as the conception of sample design, sampling, the management of surveys, and complex surveys data analyses. We have also an expertise in the treatment of missing values, matching methods, treatment effects evaluation, hedonic regression methods and hedonic price indices, differential wages decomposition and discrimination wage analysis. Fuzzy statistical methods are currently one of our main interests.

Research Group

Prof. Dr Laurent Donzé
Head of the group

■ Research Professor at the KOF ETH Zurich
■ Mentor at the Swiss Study Foundation
■ President of the Education and Research section of the Swiss Statistical Society
■ Member of the FRI-SAM's pilot board

Dr. Rédina Berkachy
Scientific collaborator

MSc Julien Rosset
Assistant

MA Thu Hang Nguyen
PhD Student

MSc Katarzyna Grinberg
PhD Student

MA Layal Christine Lettry
PhD Student

Research projects

■ Fuzzy Methods in Statistics (R. Berkachy)
■ Fuzzy Regression (J. Rosset)
■ Bayesian Fuzzy Statistics (Thu-Hang Nguyen)
■ Perceived Inflation (K. Grinberg)
■ Analysis and Development of Models for Projecting Social Security's Benefits and Expenses (L. C. Lettry)

Recent Mandates

■ Probability of collapse on historical casing. Application of API 5C3 Annex F/H Methodology (S & L Consulting)
■ Expertise 'Validierung des Modellansatzes zur Berechnung und Projektion der Einnahmen und Ausgaben der AHV" (Federal Social Insurance Office)
■ SME Competitiveness Index (International Trade Center, joint agency of the World Trade Organization and the United Nations)

COURSES

Bachelor
1. Introduction à la statistique I
2. Statistique: approfondissement
3. Économétrie (Neuchâtel)

Master
1. Thèmes choisis de statistique multivariée
2. Inférence, évaluation et sélection de modèles
3. Statistique bayésienne
4. Méthodes de classification

The master courses are given every two years. Exercices and workshops complete the courses. Jupyter nobebooks are supplied too. The software R are used in all applications.

jupyterhub

R

Latest Papers and Conferences

► Berkachy, R. (Sept. 21, 2020). "The Signed Distance Measure in Fuzzy Statistical Analysis. Some Theoretical, Empirical and Programming Advances". PhD thesis. Faculty of Management, Economics and Social Sciences, University of Fribourg, Switzerland. 361 pp. URL: https://bcufr.swisscovery.slsp.ch/permalink/41SLSP_BCUFR/13cv4r8/alma991018618437805509.

► Berkachy, R. and Donzé, L. (2020a). "Fuzzy Confidence Intervals by the Likelihood Ratio with Bootstrapped Distribution". In: Proceedings. IJJCI 2020 12th International Conference on Fuzzy Computation Theory and Applications (FCTA 2020) (Nov. 2–4, 2020).

► — (2020b). FuzzySTs: Fuzzy Statistical Tools, R package. Ed. by CRAN. URL: https://CRAN.R-project.org/package=FuzzySTs.

► Berkachy, Rédina and Donzé, Laurent (2018a). "Estimation of the fuzzy variance by different approximations of the fuzzy product". In: Proceedings. 23rd International Conference on Computational Statistics COMPSTAT 2018, Iasi, Romania. Iasi, Romania.

► — (Nov. 8, 2018b). "Fuzzy one-way ANOVA using the signed distance method to approximate the fuzzy product". In: Rencontres Francophones sur la Logique Floue et ses Applications 2018. Ed. by Collectif LFA. LFA 2018. LFA. Arras, France: CÉPADUÈS-ÉDITIONS, pp. 253–264. ISBN: 978-2-36493-677-5.

► — (2019a). "Central Moments of a Fuzzy Random Variable Using the Signed Distance: A Look Towards the Variance". In: Uncertainty Modelling in Data Science. Ed. by Sébastien Destercke et al. Uncertainty Modelling in Data Science. Vol. 832. Advances in Intelligent Systems and Computing. Springer International Publishing, pp. 17–24. ISBN: 978-3-319-97546-7. URL: https://doi.org/10.1007/978-3-319-97547-4.

► — (2019b). "Testing Hypotheses by Fuzzy Methods: A Comparison with the Classical Approach". In: Applying Fuzzy Logic for the Digital Economy and Society. Ed. by Andreas Meier, Edy Portmann, and Luis Terán. Fuzzy Management Methods. Springer Nature Switzerland AG 2019. Chap. 1, pp. 1–22. URL: https://doi.org/10.1007/978-3-030-03368-2_1.

► Donzé, Laurent and Berkachy, Rédina (2019). "Fuzzy individual and global assessments, and FANOVA. Application: Fuzzy measure of poverty with Swiss data". In: Proceedings. 62nd ISI World Statistics Congress (WSC), Kuala Lumpur, 2019 (Aug. 18–23, 2019).

► Pipoz, Layal Christine (2018). "Modélisation de la projection des rentes AVS. Étude de l'évolution du niveau des premières rentes et de son effet sur la valeur des sommes de rentes projetée". In: Journées Suisses de la Statistique 2018 (Aug. 28, 2018). Société Suisse de Statistique. Zurich.

https://asam-group.ch or **https://www.unifr.ch/inf/asam**

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