PERSONAL INFORMATION

DAVID KEPPLINGER

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ACADEMIC APPOINTMENTS

Since 02/21 **Assistant Professor of Statistics**

Department of Statistics, School of Computing
College of Engineering and Computing
George Mason University

EDUCATION

09/15 – 11/20 **PhD in Statistics**

University of British Columbia, Vancouver, BC
Thesis: *Robust Estimation and Variable Selection in High-Dimensional Linear Regression Models*
advised by Gabriela Cohen Freue

10/12 – 06/15 **Master of Science in Statistics**

Vienna University of Technology, Vienna, Austria
Thesis: *Discriminant Analysis Based on Robust Regularized Covariance Estimation*
advised by Peter Filzmoser

09/12 – 12/12 **Visiting graduate student in the Department of Statistics**

University of British Columbia, Vancouver, BC

10/09 – 07/12 **Bachelor of Science in Software & Information Engineering**

Vienna University of Technology, Vienna, Austria

PUBLICATIONS

Book Chapters

In press **D. Kepplinger** and G. V. Cohen Freue, "Robust prediction and protein selection with adaptive pense," in [B1]
Statistical Analysis in Proteomics, ser. Methods in Molecular Biology, T. Burger, Ed., Humana Press, In press.

Peer-reviewed Articles

2019   G. V. Cohen Freue, **D. Kepplinger****, M. Salibián-Barrera, and E. Smucler, "Robust elastic net estimators   [R1]
        for variable selection and identification of proteomic biomarkers," *Annals of Applied Statistics*, vol. 13,
        no. 4, pp. 2065–2090, 2019, IF: high.

2017   **D. Kepplinger**, M. Takhar, M. Sasaki, Z. Hollander, D. Smith, B. McManus, W. R. McMaster, R. T. Ng, and   [R2]
        G. V. C. Freue, "PGCA: An algorithm to link protein groups created from MS/MS data," *PLoS ONE*,
        vol. 12, no. 5, 2017, IF: high.

2013   **D. Kepplinger**, M. Templ, and S. Upadhyaya, "Analysis of energy intensity in manufacturing industry using   [R3]
        mixed-effects models," *Energy*, vol. 59, pp. 754–763, 2013, IF: high.

Working Papers

2014   S. Upadhyaya and **D. Kepplinger**, *How industrial development matters to the well-being of the population:*   [W1]
        Some statistical evidence, United Nations Industrial Development Organization Working Paper, 2014.

Conference Presentations

06/19   "Variable selection via adaptive elastic net s-estimators," presented at the 19th International Conference   [C1]
        on Robust Statistics (ICORS), Guayaquil, Ecuador.

08/18   "Improved robust estimation of the residual scale in high-dimensional problems with the adaptive elastic   [C2]
        net s-estimator for efficient robust penalized linear regression methods," presented at the JSM 2018,
        Vancouver, BC.

06/18   "Improving the robust estimation of the residual scale in high dimensional regression problems with   [C3]
        refitted cross-validation using an elastic net s-estimator," presented at the 46th Annual Meeting of the
        Statistical Society of Canada, Montreal, QC.

08/16   "Initial estimators for regularized robust methods in high-dimensional settings," presented at the 22nd   [C4]
        International Conference on Computational Statistics (COMPSTAT 2016), Oviedo, Spain.

08/14   "How industrial development affects the well-being of populations: A detailed analysis to reveal the   [C5]
        underlying mechanics.," presented at the 21st International Conference on Computational Statistics
        (COMPSTAT 2014), Poster and keynote presentation, Geneva, Switzerland.

Software

2021   **D. Kepplinger**, `examinr`, R package to create online exams from R markdown documents, https://dakep.   [S1]
        github.io/examinr/, Latest version 0.2.3, 2021-04-24.

2018   **D. Kepplinger**, M. Salibián-Barrera, and G. V. Cohen Freue, `pyinit`, R package to compute Peña-Yohai   [S2]
        initial estimates for robust S-regression, https://cran.r-project.org/package=pyinit, Latest version
        1.1.1, 2020-12-01.

2017   G. V. Cohen Freue and **D. Kepplinger**, `pgca`, R package implementing the PGCA algorithm to link protein   [S3]
        groups created from MS/MS data, https://bioconductor.org/packages/pgca/, Latest version 1.14.0,
        2020-10-27.

2017   **D. Kepplinger**, M. Salibián-Barrera, and G. V. Cohen Freue, `pense`, R package for fast computation of   [S4]
        penalized elastic net S/MM-Estimators of linear regression, https://dakep.github.io/pense-rpkg/,
        Latest version 2.0.3, 2021-04-14.

2015   **D. Kepplinger**, `gaselect`, R package implementing genetic algorithms for variable selection using partial   [S5]
        least squares. https://cran.r-project.org/package=gaselect, Latest version 1.0.9, 2020-02-06.

2014   **D. Kepplinger**, `complmrob`, R package for robust linear regression with compositional covariates, https: [S6]
        //cran.r-project.org/package=complmrob, Latest version 0.7.0, 2019-09-17.

Invited Talks and Seminars

2018   "Improving robust estimation of the residual scale in high dimensions," presented at the UBC-SFU Joint Seminar, Vancouver, BC.   [T1]

2017   "Data science and machine learning at ecoation," presented at the UBC Department of Statistics Seminar, Vancouver, BC.   [T2]

2015   "Robust regularized estimation of the inverse covariance matrix," presented at the UBC-SFU Joint Seminar, Vancouver, BC.   [T3]

2014   "How industrial development affects the well-being of populations: Some statistical evidences," presented at the International Seminar on Industrial Statistics "20 Years Statistics in Service of the Nations for Industrialization" dedicated to the 20th Edition of the International Yearbook of Industrial Statistics, Vienna, Austria.   [T4]

Preprints and Work in Progress

2021   **D. Kepplinger**, "Robust variable selection and parameter estimation in linear regression models with adaptive elastic net s-estimators," In preparation, 2021.   [P1]

2021   J. Watson, **D. Kepplinger**, and G. V. Cohen Freue, "Thrice robust instrumental variable estimation with application to mendelian randomization," In preparation, 2021.   [P2]

2017   **D. Kepplinger**, P. Filzmoser, and K. Varmuza, "Variable selection with genetic algorithms using repeated cross-validation of PLS regression models as fitness measure," *arXiv e-prints*, arXiv:1711.06695, 2017.   [P3]

RESEARCH FUNDING

1   **INOVA Health U19-11-3826 (Co-I)**

Biostatistician Resource and Research for Researchers on iTHRIVE: Using Data to Improve Health (Parent award NIH 1UL1TR003015-1). PI: Dr. Jiayang Sun, Co-Is: Bagachi, Bruce, Lee, Hunter, Kepplinger, Fadahunsi. 2021/02/01 – 2022/01/31: $146,413 **(personal share $3,000)**.

TEACHING

George Mason University

Spring '21   **STAT 634 – Case studies in data analysis:** Capstone course for statistics students in the Master program with an emphasis on statistical consulting and data analysis projects with real clients. Major updates to previous offerings include the introduction of git and Github for the management of data analyses projects and collaboration, a focus on reproducible analyses (e.g., reproducible data wrangling, using R markdown documents for reporting), and new case studies in genomics and statistical ecology. Enrolment: 18.

University of British Columbia

Spring '20   **STAT 305 – Introduction to statistical inference:** Concepts and methods of statistical inference for students mainly specializing in Statistics, Mathematics, and Computer Science. Enrolment: 143. Instructor evaluation: 4.1/5.

HONORS AND AWARDS

03/20   **Data Science Award**

Awarded by the Department of Statistics, University of British Columbia, for demonstrating initiative and creativity in making outstanding contributions in the field of Data Science

09/15 – 08/19	**Four-year Doctoral Fellowship**
	Awarded by the Department of Statistics, University of British Columbia
2018	**Award for the Best Graduate Teaching Assistant**
	Awarded by the Department of Statistics, University of British Columbia
2015 – 2017	**Graduate Student Award for Outstanding Academic Achievements**
	Awarded by the Faculty of Science, University of British Columbia
2014	**First Place in the IASC 2014 Data Analysis Competition**
	Awarded by the IASC COMPSTAT 2014 conference for the research project and case study "Robust regression with compositional data".
2012	**Stiftungsstipendium (Scholarship for Excellency by the University Endowment Fund)**
	Awarded by the Vienna University of Technology, Austria, to students with excellent achievements in their undergraduate program and financial need.
2012	**Leistungsstipendium (Scholarship for Excellent Academic Performance)**
	Awarded by the Vienna University of Technology, Austria, to students with excellent achievements in their undergraduate program.

PROFESSIONAL DEVELOPMENT

10/18	**Instructional Skills Workshop**
	3-day workshop for peer-based instructional development designed to strengthen instructors' skills through intensive practical exercises in learner-centered teaching.

PROFESSIONAL SERVICES

Referee

- Austrian Journal of Statistics
- Computational Statistics
- Journal of the American Statistical Association
- Econometrics and Statistics
- Patterns
- The Canadian Journal of Statistics

Conference Session Organizer

2021 International Chinese Statistical Association Applied Statistics Symposium. Session title: "Robust methods for feature selection from high-dimensional data".

Conference Session Chair

19th International Conference on Robust Statistics (ICORS 2019).
46th Annual Meeting of the Statistical Society of Canada (SSC 2018).

Membership

American Statistical Association
Statistical Society of Canada

UNIVERSITY SERVICES

Since 02/21 — **Co-organizer of the R. Clifton Bailey Statistics Seminar Series**

Department of Statistics, Volgenau School of Engineering; George Mason University

05/16 – 06/20 — **TA Mentor**

Department of Statistics; University of British Columbia
Mentoring of new TAs as part of the department's TA training program.

07/17 – 05/19 — **Graduate Student Representative**

Department of Statistics; University of British Columbia
Coordinating graduate student events and representing graduate students' interests in official departmental processes.

09/18 – 01/19 — **Member of the Faculty Search Committee**

Department of Statistics; University of British Columbia
Representing graduate students' interests and opinions on the search committee for two tenure-track faculty positions at the Department of Statistics.

09/16 – 04/17 — **Workshop Facilitator**

Applied Statistics and Data Science Group, Department of Statistics; University of British Columbia
Designing and facilitating workshops on R and statistical methods for researchers in the life sciences.

INDUSTRY EXPERIENCE

06/09 – 01/21 — **Web Developer**

Kondeor Marketinganalysen GmbH, Eugendorf (Austria)
Implementing interactive online questionnaires, dashboards for real-time statistics, and online reports.

05/16 – 03/19 — **Applied Data Scientist**

Ecoation Innovative Solutions Inc., North Vancouver, BC

- Building and analyzing models to predict plant health based on an amalgam of optical sensor and image data.
- Building image recognition models to improve efficiency of horticultural practices.
- Designing and implementing cloud-based application infrastructure to deploy the models for near real-time analysis of the data.

03/14 – 07/15   Statistical Consultant

United Nations Industrial Development Organization, Vienna (Austria)

- Analyzing the relationship between indicators of social development and industrial development.

- Developing robust methods to understand the relation between the technological structure of the manufacturing industry and social indicators (compositional data).

- Automating the computation of the Competitive Industrial Performance (CIP) index and investigating the effect of several imputation methods applied at different stages of the computation.

RELATED
INFORMATION _____ ■

Mother tongue   German

Computing skills   • Operating Systems: Mac OS X, GNU/Linux, MS Windows

- Programming/Scripting Languages: R, Python, C/C++, Julia, Java, C#, VB.NET

- Database Management Systems: PostgreSQL, MySQL, Oracle, MS-SQL, SQLite, MongoDB

- Cloud Computing Infrastructure: Amazon AWS

- Web development: PHP, Javascript, XHTML, CSS