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CURRICULUM VITAE

- Born October 13, 1956 in Wilrijk (Belgium).
- Nationality Belgian.
- Languages: Dutch, English, French, German.
- 1974–78 Diploma in pure mathematics at the University of Brussels (each year summa cum laude). Completed two years of civil engineering at the same time.
- 1978–84 Researcher with the Belgian National Science Foundation.
- 1978–80 Performed research in statistics at the ETH Zürich.
- 1981 Obtained Ph.D. degree in statistics (summa cum laude).
- 1984–87 Professor at Technical University Delft, The Netherlands.
- 1987–88 Professor at University of Fribourg, Switzerland.
- 1989 Professor at University of Antwerp (UA).
- 2002 Researcher, Renaissance Technologies Corporation, NY.

Functions/Recognition

Laureate, National Academic Competition, with thesis on algebra (1979).
Elected Member, International Statistical Institute (elected 1991).
Council Member, Belgian Statistical Society (1992–2001).
International Technical Advisor, UNESCO (1993–2001).
Fellow, Institute of Mathematical Statistics (elected 1993).
Fellow, American Statistical Association (elected 1994).
Fellow, Royal Statistical Society (elected 1997).

Since 2003 the makers of the Science Citation Index (ISI, Philadelphia) spontaneously included me in their list of the most highly cited mathematicians worldwide (not only statisticians). The list can be viewed by browsing at <http://isihighlycited.com/> and selecting the category Mathematics. (One can also search by country.)

My 1984 paper in JASA which proposed new robust methods for regression and covariance (paper 21) has been reprinted in *Breakthroughs in Statistics III* (Kotz and Johnson 1997, Springer-Verlag, New York). The 3-volume collection consists of the 60 most influential

publications in the field of statistics over the past 140 years (1850–1990), starting with the work of Galton, Pearson, Fisher, and Kolmogorov. The papers were selected by polls, and each paper is accompanied by an introduction written by an independent expert, describing its impact on statistics and other fields.

Summary of research interests (more on pages 5 and 6)

Ph.D. research was on the influence function approach to robust statistics, resulting in a book with F. Hampel, E. Ronchetti, and W. Stahel. Then started to work on positive-breakdown methods, developing least median squares regression and the minimum volume ellipsoid estimator, thereby combining a theoretical framework with algorithm construction and practical applications. A third topic is cluster analysis, for which new techniques were developed, including fuzzy methods. Currently also working on depth functions and algorithms to compute the location depth of a point, depth contours, and deepest regression. Recent emphasis on algorithms for large data sets.

Applied research

Many academic collaborations, sometimes with a co-authored paper, in Economics (earnings functions, inflation), Physics (gravitational interactions), Astronomy (analysis of stellar spectra), Medicine (cancer, ophthalmology, audiometry, rhinology), Sociology (modeling behavior using Markov chains), Biology (tropical insects, clustering of reptile chromosomes), Dentistry, Geography (incidence of certain diseases), Psychology-Pedagogy (problems of first-year university students), Analytical Chemistry (clustering and calibration), Geochemistry (exploration, and detection of environmental pollution sources), Computer Vision, Electrical Engineering (Power Networks), and Finance.

Outside projects in industry

Redesigned the measurement and quality assurance processes, of the whole production line, in a chemical plant near Antwerp. Also provided support during the practical implementation (1993–1997).

Two other projects in industry involved time series analysis of oil prices (DSM), and reliability of high-voltage insulators (Alcatel).

Teaching experience

University of Brussels:

1981–84 Calculus, Mathematical Statistics, Regression Analysis (for economists), and Introductory Statistics (for geographers).

Technical University Delft:

1984–87 Introductory Statistics, Mathematical Statistics, Cluster Analysis, and Capita Selecta.

University of Fribourg:

1987–88 Statistics II and III (in French and in German).

University of Antwerp:

1989– Courses on Probability Theory and Statistics.

Visiting positions

- 1983 Member of the Berkeley Mathematical Sciences Research Institute, from March 1 until May 31.
- 1985 Asian Institute of Technology (in Rangsit, Thailand), from August 30 until September 30; again in May–June 1991.
- 1988 Vesalius College, Brussels: Statistics for Business Economics.
- 1989 Teaching a course in the Diplôme postgrade en statistique, Université de Neuchâtel (Switzerland).
- 1992 Member of MSRI (Berkeley), from April 1 until May 15.
- 1993 Ecole Polytechnique Fédérale, Lausanne, from July 1 to August 30.
- 1998 Teaching a course on Statistique Multivariée, Université Libre de Bruxelles.
- 2005 Katholieke Universiteit Leuven: Capita Selecta in Statistics.

Editorial activities

- Associate Editor, **Journal of the American Statistical Association** (1988–1993).
- Associate Editor, **Computational Statistics and Data Analysis** (1988–1998).
- Advisory Board, **Encyclopedia of Statistical Sciences, Second Edition**, New York: John Wiley (since 2001).

Publications

The complete list (3 books and over 150 articles) is given on pages 7 to 19. Approximately one fourth of the papers is about specific applications.

Citations

The following six publications had the largest impact until now. The number of citations was obtained by searching the integrated data base from which both the Science Citation Index and the Social Sciences Citation Index are derived (so that no citation is counted twice), up to April 2002.

#citations	publication
423	Rousseeuw (1984) Least Median of Squares Regression (paper 21)
106	Rousseeuw-Yohai (1984) S-Estimators [in proceedings] (paper 23)
815	Hampel-Ronchetti-Rousseeuw-Stahel (1986) Robust Statistics (book 1)
966	Rousseeuw-Leroy (1987) Robust Regression and Outlier Detection (book 2)
300	Kaufman-Rousseeuw (1990) Finding Groups in Data (book 3)
200	Rousseeuw-van Zomeren (1990) Unmasking Leverage Points (paper 50)
2810	

The total number of citations for all publications in the list was 3706.

Supervisor of Ph.D. dissertations

Was advisor for 19 doctorates:

- 1983 M. Aboukalam: Computer Programs for the Calculation of Robust M-estimators in Location and Regression.
- 1983 Z. Balkhi: The Optimal Search Problem: Theory and Computations.
- 1987 A. Leroy: An Investigation of Properties and Applications of High-Breakdown Fitting in Linear Models.
- 1987 J. Dijkstra: Analysis of Means in some Non-Standard Situations (co-advised).
- 1988 Jörg van Hoorn: Robuste, nichtparametrische Schätzung von Regressionsfunktionen mit S-Schätzern (co-advised).
- 1990 H. Lopuhaä: Estimation of Location and Covariance with high Breakdown Point.
- 1991 O. Hössjer: Robust Linear Regression by means of M- and R-statistics (co-advised).
- 1991 E. Trauwaert: Fuzzy Cluster Analysis Algorithms (co-advised).
- 1993 G. Molenberghs: Analysis of Multivariate Ordered Categorical Data (co-advised).
- 1994 C. Croux: Highly Robust Scale Estimators with Applications in Regression Analysis.
- 1997 M. Hubert: Robust Regression for Data Analysis.
- 1999 I. Ruts: Bivariate Location Depth.
- 2000 S. Van Aelst: Robustness Properties of New Regression Methods.
- 2000 A. Struyf: Computational and Geometric Aspects of Statistical Depth.
- 2002 K. Van Driessen: Fast Algorithms for MCD and LTS with Applications.
- 2002 G. Pison: Robust Multivariate Analysis and Diagnostic Tools.
- 2004 S. Verboven: Robust Calibration Methods.
- 2004 G. Willems: Methods for Robust Multivariate Inference.
- 2006 G. Brys: Skewness and Related Topics in the Presence of Outliers.

Eight of these people are now professors at universities.

Conferences and other presentations

Presented over 70 invited talks at conferences, including some Opening and Plenary lectures. In addition, taught several international short courses, and was involved in the organization of over 10 conferences. (See the list of Conferences.)

Moreover, gave many presentations at seminars etc. when visiting various universities and research centers.

Administration

- Head of the Division of Applied Mathematics (since 1992).
- Vice-Chair, Dept. of Mathematics and Computer Science (1997–1998).
- Member of the UIA Committee on Education (1990–1992).
- Member of the UIA Research Council (1992–1994).

Evolution of research topics

The Ph.D. research (1978–1980) focused on *robust statistics*, and led to the influence function for tests and the change-of-variance function for estimators. This work appeared in papers and then in [book 1], which later was translated into Russian [book 1’]. After the thesis, worked on the first computation of linear search paths [paper 10] and a numerical study in astrophysics [19, 20].

From 1983 onwards, a major theme was the development of *positive-breakdown methods* for regression such as LMS, LTS and S-estimators [21, 23], and for scatter matrices, including the MVE and MCD methods [29]. The initial algorithms were highly computer-intensive. Early applications were to insurance [17, 18] and analytical chemistry [32]. This material was then unified in a didactical way in [book 2]. The subject is rapidly expanding by new theoretical work [59, 78, and asymptotic results], algorithms [43, 71], graphics [50, 53], and new fields of application such as Power Networks [58], Finance, Geochemistry [62], and Computer Vision [118]. Other researchers are providing many more generalizations and applications. Also two practical scale estimators were introduced [73] and studied theoretically [67, 89], and $O(n \log n)$ exact algorithms were constructed for their computation [68]. The asymptotic behavior of the repeated median was obtained, as well as a low-complexity algorithm and a numerical study [72, 80, 83, 85].

In between there were other statistical applications, and some didactical papers [52, 54, 81].

Another research direction is *cluster analysis*, again from the angles of new methodology, efficient computation, graphics, and applications [15, 31, 35, 39, 41, 103, 111, and book 3]. Of particular interest is the development of effective fuzzy methods [46, 57, 84, 86, 93].

Much research is now going on about *depth functions*. Algorithms have been constructed for computing the location depth of a point [94, 110], the depth contours [95], the deepest location [109, 124], and the resulting bivariate boxplot [117]. The notion of *regression depth* has been introduced [113, 114] and is being investigated further, also from the viewpoint of computational geometry [115, 121].

A recent interest is to develop algorithms that allow robust methods to be carried out for large data sets [119, 121, 158] with an eye to their use in a data mining context. Applications to economic and financial data are under preparation.

My present research goal is in the direction of financial mathematics/statistics. This is a difficult topic which needs to be studied thoroughly from different angles including theory, algorithms, and practice.

Techniques and software developed

<u>New methods</u>	<u>Own software</u>	<u>Included in:</u>
Optimal search paths	prototype (1981)	Described in paper 10 (1983).
Least median of squares and least trimmed squares regression estimators	PROGRESS (1983) (paper 21, 1984; book 2, 1987)	lmsreg & ltsreg in S-PLUS, ROBETH, Statlib, Minitab, Matlab (Mathworks), Mathematica (Mathsource), and SAS/IML 8.
MVE location and scatter matrix	MINVOL (1985) (paper 29, book 2)	cov.mve in S-PLUS, ROBETH, Statlib, and SAS/IML 8.
Parallel clustering algorithm	prototype (1986) at IBM New York	Described in paper 43 (1988).
Smallstorage location	REMEDIAN (1988)	In paper 47 (1990).
Silhouette plot, fuzzy nonmetric clustering, k-medoid method	CLUSFIND (1989) (six programs) (book 3, 1990)	In Microsiris, CLUSTAN, IDAMS (UNESCO), Statlib, S-PLUS 3.4, and R.
Diagnostic plot (1990)	prototype in ISP	Papers 50, 53, and S-PLUS 4.5.
Combination (paper 63)	LMSMVE (1991)	For SYSTAT users.
$O(n \log n)$ algorithms for new spread estimators	S_n and Q_n (1992)	Given in papers 68, 73, Statlib, and Statistical Calculator.
$O(n \log n)$ algorithm for location depth Depth contours and depth median	LDEPTH (1993) ISODEPTH , HALFMED (1995)	JRSS-C algorithm, paper 94. Also in Statistical Calculator. In papers 95 and 109.
Robust regression with categorical covariables	RDL1 (1996)	In paper 97 (S-PLUS).
Fast algorithms for the MCD scatter matrix and LTS regression	FAST-MCD (1997), FAST-LTS (1998)	Described in papers 119 and 158. In S-PLUS 4.5, SAS/IML 8, and SAS 9 (PROC ROBUSTREG).
Displaying a clustering	CLUSPLOT (1998)	In paper 111 and S-PLUS 4.5.
Regression depth	RDEPTH (1998)	In paper 110.
Bivariate boxplot	BAGPLOT (1999)	In paper 117 (S-PLUS).
Deepest Regression	MEDSWEEP	In paper 140 (2000).

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PUBLICATIONS

Books

1. Hampel, F.R., Ronchetti, E.M., Rousseeuw, P.J., and Stahel, W.A. (1986), *Robust Statistics: the Approach Based on Influence Functions*, Wiley-Interscience, New York (Series in Probability and Mathematical Statistics), 502 pages. ISBN 0-471-82921-8. Second printing also as paperback (ISBN 0-471-63238-4), 14 reviews.
- 1'. Xampepb, F., Rohyettn, E., Royccey, P., Wtaepb, B. (1989), *Pobacthoctb B Ctatnctnke*, 512 pages, ISBN 5-03-001003-3, Mir, Moscow. Foreword by V.M. Zolotarev, USSR Academy of Sciences. (Russian translation of book 1.)
2. Rousseeuw, P.J. and Leroy, A.M. (1987), *Robust Regression and Outlier Detection*, Wiley-Interscience, New York (Series in Applied Probability and Statistics), 329 pages. ISBN 0-471-85233-3. Fourth printing, 17 reviews.
3. Kaufman, L. and Rousseeuw, P.J. (1990), *Finding Groups in Data: An Introduction to Cluster Analysis*, Wiley-Interscience, New York (Series in Applied Probability and Statistics), 342 pages, ISBN 0-471-87876-6. Third printing, 10 reviews.

Edited Volumes

1. Rasson, J.-P. and Rousseeuw, P.J. (1996), *Classification*, Special Issue of *Computational Statistics and Data Analysis*, Volume 23, Issue 1.
2. Dutter, R., Filzmoser, P., Gather, U., and Rousseeuw, P.J. (2003), *Developments in Robust Statistics*, Heidelberg: Physica-Verlag.

Papers

1. Rousseeuw, P.J. (1981), "A New Infinitesimal Approach to Robust Estimation," *Zeitschrift für Wahrscheinlichkeitstheorie und verwandte Gebiete*, 56, 127–132.
2. Rousseeuw, P.J. and Ronchetti, E. (1981), "Influence Curves of General Statistics," *Journal of Computational and Applied Mathematics*, 7, 161–166.

3. Hampel, F.R., Rousseeuw, P.J., and Ronchetti, E. (1981), "The Change-of-Variance Curve and Optimal Redescending M-estimators," *Journal of the American Statistical Association*, 76, 643–648.
4. Rousseeuw, P. (1981), "Infinitesimal Criteria in Robust Estimation of Location," *Revue Belge de Statistique, d'Informatique et de Recherche Opérationnelle*, 21, No. 4, 24–42.
5. Distelmans, W., D'Haeseleer, F., Kaufman, L., and Rousseeuw, P. (1982), "The Susceptibility of Glossina Palpalis Palpalis at Different Ages to Infection with Trypanosoma Congolense," *Annales de la Société Belge de la Médecine Tropicale*, 62, 41–47.
6. Rousseeuw, P.J. (1982), "Most Robust M-estimators in the Infinitesimal Sense," *Zeitschrift für Wahrscheinlichkeitstheorie und verwandte Gebiete*, 61, 541–555.
7. Rousseeuw, P. (1982), "Estimation and Testing by means of Optimally Robust Statistics," *Revue Belge de Statistique, d'Informatique et de Recherche Opérationnelle*, 22, No. 3, 3–19.
8. Pauwels, H.P., Vogeleer, M., Clement, P.A.R., Rousseeuw, P.J., and Kaufman, L. (1982), "Brainstem Electric Response Audiometry in Newborns," *International Journal of Pediatric Otorhinolaryngology*, 4, 317–323.
9. Rousseeuw, P. (1983), "Location M-estimators are Characterized by the Infinitesimal Behavior of their Asymptotic Variance," *Bulletin de la Société Mathématique de Belgique*, 35-B, 167–176.
10. Rousseeuw, P.J. (1983), "Optimal Search Paths for Random Variables," *Journal of Computational and Applied Mathematics*, 9, 279–286.
11. Trau, R., Salu, P., Wisnia, K., Kaufman, L., Rousseeuw, P., and Pierreux, A. (1983), "Simultaneous ERG-VER Recording: Statistical Study," *Bulletin de la Société Belge d'Ophtalmologie*, 206, 61–67.
12. Clement, P.A.R., Kaufman, L., and Rousseeuw, P. (1983), "Active Anterior Rhinomanometry in Pre- and Postoperative Evaluation, use of Broms' Mathematical Model," *Rhinology*, 21, 121–133.
13. Lecompte, D., Kaufman, L., Rousseeuw, P., and Tassin, A. (1983), "Search for the Relationship between Academic Performance and some Psychosocial Factors: the use of a Structured Interview," *Acta Psychiatrica Belgica*, 83, 598–608.
14. Lecompte, D., Kaufman, L., and Rousseeuw, P. (1983), "Search for the Relationship between Interrupted University Attendance of First Year Students and some Psychosocial Factors," *Acta Psychiatrica Belgica*, 83, 609–617.
15. Kaufman, L., Pierreux, A., Rousseeuw, P., Derde, M.P., Detaevernier, M.R., Massart, D.L., and Platbrood, G. (1983), "Clustering on a Microcomputer with an Application to the Classification of Coals," *Analytica Chimica Acta*, 153, 257–260.

16. de Mot, B., de Clercq, M., and Rousseeuw, P. (1984), "Visco-Elastic Properties of four currently used Tissue Conditioners," *Journal of Oral Rehabilitation*, 11, 419–427.
17. Rousseeuw, P., Daniels, B., and Leroy, A. (1984), "Applying Robust Regression to Insurance," *Insurance: Mathematics and Economics*, 3, 67–72.
18. Rousseeuw, P., Leroy, A., and Daniels, B. (1984), "Resistant Line Fitting in Actuarial Science," in *Premium Calculation in Insurance*, edited by F. de Vylder, M. Goovaerts, and J. Haezendonck, Reidel Publishing Company, Dordrecht, 315–332.
19. Luwel, M., Severne, G., and Rousseeuw, P.J. (1984), "Numerical Study of the Relaxation of One-Dimensional Gravitational Systems," *Astrophysics and Space Science*, 100, 261–277.
20. Severne, G., Luwel, M., and Rousseeuw, P.J. (1984), "Equipartition and Mass Segregation in 1-Dimensional Gravitational Systems," *Astronomy and Astrophysics*, 138, 365–370.
21. Rousseeuw, P.J. (1984), "Least Median of Squares Regression," *Journal of the American Statistical Association*, 79, 871–880.
22. Leroy, A. and Rousseeuw, P. (1984), "A Portable Fortran Program for the Least Median of Squares Regression Line," *Revue Belge de Statistique, d'Informatique et de Recherche Opérationnelle*, 24, No. 2, 28–38.
23. Rousseeuw, P. and Yohai, V. (1984), "Robust Regression by means of S-estimators," in *Robust and Nonlinear Time Series Analysis*, edited by J. Franke, W. Härdle, and D. Martin, Lecture Notes in Statistics No. 26, Springer Verlag, Berlin, 256–272.
24. Lecompte, D., Rousseeuw, P., and Kaufman, L. (1984), "Dimensions of First Year University Student Behavior," *Acta Psychiatrica Belgica*, 84, 572–579.
25. Desterbeck, R.-A., Stoop, A., Franckx, H., Clement, P.A.R., Kaufman, L., and Rousseeuw, P. (1984), "De invloed van zwemmen op de neusdoorgankelijkheid en de tubafunctie bij kinderen," *Acta Oto-Rhino-Laryngologica Belgica*, 38, 410–421.
26. Ronchetti, E. and Rousseeuw, P.J. (1985), "Change-of-Variance Sensitivities in Regression Analysis," *Zeitschrift für Wahrscheinlichkeitstheorie und verwandte Gebiete*, 68, 503–519.
27. Donoho, D., Johnstone, I., Rousseeuw, P., and Stahel, W. (1985), "Discussion of Peter Huber's Projection Pursuit," *The Annals of Statistics*, 13, 496–500.
28. Leroy, A. and Rousseeuw, P. (1985), "Computing Robust Regression Estimators with PROGRESS and some Simulation Results," *Statistics and Decisions*, 2, 321–325.
29. Rousseeuw, P. (1985), "Multivariate Estimation with High Breakdown Point," in *Mathematical Statistics and Applications*, edited by W. Grossmann, G. Pflug, I. Vincze, and W. Wertz, Reidel Publishing Company, Dordrecht (co-published with Akadémiai Kiadó, Budapest), 283–297.

30. Leroy, A. and Rousseeuw, P. (1986), "A New Algorithm for Resistant Regression," *Belgian Journal of Operations Research, Statistics and Computer Science*, 26, No. 2, 3–19.
31. Kaufman, L. and Rousseeuw, P.J. (1986), "Clustering Large Data Sets," in *Pattern Recognition in Practice II*, edited by E.S. Gelsema and L.N. Kanal, Elsevier/North-Holland, 425–437 (with discussion).
32. Massart, D.L., Kaufman, L., Rousseeuw, P.J., and Leroy, A. (1986), "Least Median of Squares: a Robust Method for Outlier and Model Error Detection in Regression and Calibration," *Analytica Chimica Acta*, 187, 171–179.
33. Rousseeuw, P.J. (1986), "Robuste Regression mit Ausreißern in den erklärenden Variablen," *Österreichische Zeitschrift für Statistik und Informatik*, 16, 36–42.
34. Bingen, F., Siau, C., and Rousseeuw, P. (1986), "Applying Robust Regression Techniques to Institutional Data," *Research in Higher Education*, 25, No. 3, 277–297.
35. Lecompte, D., Kaufman, L., and Rousseeuw, P. (1986), "Hierarchical Cluster Analysis of Emotional Concerns and Personality Characteristics in a Freshman Population," *Acta Psychiatrica Belgica*, 86, 324–333.
36. Rousseeuw, P.J. (1986), "A Visual Display for Hierarchical Classification," in *Data Analysis and Informatics 4*, edited by E. Diday, Y. Escoufier, L. Lebart, J. Pagès, Y. Schektman and R. Tomassone, North-Holland, 743–748.
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38. de Loore, C., Monderen, P., and Rousseeuw, P. (1987), "A New Statistical Method to Derive Radial Velocity Shifts from Stellar Spectra," *Astronomy and Astrophysics*, 178, 307–309.
39. Kaufman, L. and Rousseeuw, P.J. (1987), "Clustering by means of Medoids," in *Statistical Data Analysis Based on the L_1 -Norm and Related Methods*, edited by Y. Dodge, North-Holland, 405–416.
40. Rousseeuw, P.J. (1987), "An Application of L_1 to Astronomy," in *Statistical Data Analysis Based on the L_1 -Norm and Related Methods*, edited by Y. Dodge, North-Holland, 437–445.
41. Rousseeuw, P.J. (1987), "Silhouettes: a Graphical Aid to the Interpretation and Validation of Cluster Analysis," *Journal of Computational and Applied Mathematics*, 20, 53–65.
42. Rousseeuw, P.J. and Leroy, A.M. (1988), "A Robust Scale Estimator Based on the Shortest Half," *Statistica Neerlandica*, 42, 103–116.

43. Kaufman, L., Hopke, P.K., and Rousseeuw, P.J. (1988), "Using a Parallel Computer System for Statistical Resampling Methods," *Computational Statistics Quarterly*, 2, 129–141.
44. Rousseeuw, P.J. (1988), "PROGRESS: A Program for Robust Regression," *Trends in Analytical Chemistry*, 7, 320–321.
45. Trauwaert, E., Rousseeuw, P., and Kaufman, L. (1989), "Some Silhouette-Based Graphics for Clustering Interpretation," *Belgian Journal of Operations Research, Statistics and Computer Science*, 29, No. 3, 35–55.
46. Rousseeuw, P.J., Derde, M.-P., and Kaufman, L. (1989), "Principal Components of a Fuzzy Clustering," *Trends in Analytical Chemistry*, 8, 249–250.
47. Rousseeuw, P.J. and Bassett, G.W. (1990), "The Remedian: A Robust Averaging Method for Large Data Sets," *Journal of the American Statistical Association*, 85, 97–104.
48. Rousseeuw, P.J. (1990), "Robust Estimation and Identifying Outliers," in *Handbook of Statistical Methods for Engineers and Scientists*, edited by H.M. Wadsworth, New York: McGraw-Hill, ISBN 0-07-067674-7, pages 16.1–16.24.
49. Mili, L., Phaniraj, V., and Rousseeuw, P.J. (1990), "Robust Estimation Theory for Bad Data Diagnostics in Electric Power Systems," in *Control and Dynamic Systems, Vol. 37: Advances in Industrial Systems*, edited by C.T. Leondes, Academic Press, New York, ISBN 0-12-012737-7, pages 271–325.
50. Rousseeuw, P.J. and van Zomeren, B.C. (1990), "Unmasking Multivariate Outliers and Leverage Points," *Journal of the American Statistical Association*, 85, 633–651 (including three invited comments and the rejoinder).
51. Rousseeuw, P.J. and van Zomeren, B.C. (1990), "Some Proposals for Fast HBD Regression," in *COMPSTAT 1990: Proceedings in Computational Statistics*, edited by K. Momirović and V. Mildner, Heidelberg: Physica-Verlag, 185–192.
52. Rousseeuw, P.J. (1991), "Tutorial to Robust Statistics," *Journal of Chemometrics*, 5, 1–20.
53. Rousseeuw, P.J. (1991), "A Diagnostic Plot for Regression Outliers and Leverage Points," *Computational Statistics and Data Analysis*, 11, 127–129.
54. Rousseeuw, P.J. (1991), "Why the Wrong Papers get Published," *CHANCE: New Directions for Statistics and Computing*, 4, No. 1, 41–43.
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61. Rousseeuw, P.J. (1991), “Programs for Cluster Analysis,” *Computational Statistics and Data Analysis*, 11, 353–354.
62. Chork, C.Y. and Rousseeuw, P.J. (1992), “Integrating a High-Breakdown Option into Discriminant Analysis in Exploration Geochemistry,” *Journal of Geochemical Exploration*, 43, 191–203.
63. Dallal, G.E. and Rousseeuw, P.J. (1992), “LMSMVE: A Program for Least Median of Squares Regression and Robust Distances,” *Computers and Biomedical Research*, 25, 384–391.
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*Invited Presentation

- *36. Rousseeuw, P. (1986), “Inleiding tot Robuuste Schatting,” 22nd Mathematical Convention. Enschede (Netherlands), 1–2 April.
- *37. Rousseeuw, P. (1986), “Silhouettes: A Graphical Aid to the Interpretation and Validation of Cluster Analysis,” International Congress on Computational and Applied Mathematics. Leuven (Belgium), 21–26 July.
- *38. Ronchetti, E., Rousseeuw, P., and Stahel, W. (1986), “Robust Statistical Methods,” two-day short course, Joint Statistical Meetings. Chicago, 16–17 August.
- 39. Rousseeuw, P. and Leroy, A. (1986), “Simulation in Statistics: A Comparison of Robust Regression Estimators,” 2nd European Simulation Congress. Antwerp (Belgium), 9–12 September.
- 40. Rousseeuw, P. (1987), “La régression robuste et l’identification des valeurs aberrantes,” Journées de Statistique, Association des Statisticiens Universitaires. Lausanne, 18–20 May.
- *41. (1987) Member of the Program Committee, European Meeting of the Psychometric Society. Enschede (Netherlands), 24–26 June.
- *42. Rousseeuw, P. (1987), “High-Breakdown Regression and the Identification of Outliers,” 17th European Meeting of Statisticians. Thessaloniki (Greece), 24–28 August. Also chaired a session of contributed papers.
- 43. Leroy, A. and Rousseeuw, P. (1987), “A Robust Scale Estimator Based on the Shortest Half,” 17th European Meeting of Statisticians. Thessaloniki, 24–28 August.
- *44. Kaufman, L. and Rousseeuw, P. (1987), “Clustering by Means of Medoids,” First International Conference on Statistical Data Analysis Based on the L_1 -Norm and Related Methods. Neuchâtel (Switzerland), 31 August – 4 September. Was organizer of the session on cluster analysis, with speakers E. Trauwaert and H. Späth.
- *45. Rousseeuw, P. (1987), “An Application of L_1 to Astronomy,” same conference (in the session on Applications).
- 46. Trauwaert, E., Rousseeuw, P., and Kaufman, L. (1988), “Graphical Displays for Clustering Interpretation,” Fourth National Congress on Quantitative Methods for Decision Making. Brussels, 14–15 January.
- *47. Rousseeuw, P. (1988), “Robust Regression Analysis,” Fourth International Conference on Chemometrics in Analytical Chemistry. Amsterdam (Netherlands), 18–20 May.
- *48. Rousseeuw, P. (1988), “On Recent Work in Robustness,” Statistics Days. Heidelberg (West Germany), 7–8 July.

*Invited Presentation

- *49. Rousseeuw, P. (1989), “A Survey of High Breakdown Point Methods,” Workshop on Robustness and Diagnostics, Institute of Mathematics and its Applications. Minneapolis, 10 July – 4 August.
- *50. Rousseeuw, P. and van Zomeren, B. (1989), “Unmasking Multivariate Outliers and Leverage Points” (with three discussants), Joint Statistical Meetings. Washington, DC., 6–10 August. Was also discussant of the talks by Atkinson, Schall, and Easton-McCullagh.
- 51. Rousseeuw, P. and van Zomeren, B. (1989), “Algorithms for Robust Estimation with High Breakdown Point,” International Conference on Recent Developments in Statistical Data Analysis and Inference. Neuchâtel (Switzerland), 21–24 August.
- *52. (1989) Organizer and lecturer in the ECAS short course (Erasmus Programme) on *Robustness in Statistics*. Reimsburg (Germany), 2–6 October.
- *53. Rousseeuw, P. (1989), “Asymptotics of the Remedial,” Meeting on Asymptotic Methods for Computer-Intensive Procedures in Statistics. Oberwolfach (West Germany), 10–16 December.
- 54. Mili, L., Phaniraj, V., and Rousseeuw, P.J. (1990), “High Breakdown Point Estimation in Electric Power Systems,” *Proceedings of the 1990 IEEE Symposium on Circuits and Systems*, pp. 1843–1846. New Orleans, Louisiana, 1–3 May.
- *55. Rousseeuw, P. (1990), “Multivariate Outliers and Leverage Points,” XVI National Summer School on Applications of Mathematics in Engineering. Varna (Bulgaria), 27 August – 2 September.
- *56. Rousseeuw, P. (1990), “Computing for Robust Statistics,” Opening Lecture, COMPSTAT 1990 (9th Symposium on Computational Statistics). Dubrovnik (Yugoslavia), 9–15 September.
- 57. Rousseeuw, P. (1990), “Robust Averaging of Curves and Images,” North Sea Conference on Biomedical Engineering 1990. Antwerp, 19–22 November.
- 58. Wagner, J. and Rousseeuw, P. (1990), “An International Comparison of Sector Wage Differentials based on Robust Estimation of Linear Models with a Distributed Intercept,” 31st International Conference, Applied Econometrics Association. Strasbourg (France), 5–7 December.
- *59. Trauwaert, E., Rousseeuw, P., and Kaufman, L. (1992), “Fuzzy Clustering by Minimizing the Total Hypervolume,” 16th Annual Meeting, Gesellschaft für Klassifikation. Dortmund, 1–3 April.
- *60. Croux, C. and Rousseeuw, P. (1992), “Estimateurs d’échelle robustes et simples,” *XXIVèmes Journées de Statistique*. Brussels, 18–22 May. Also member of the Scientific Committee, and session organizer.

*Invited Presentation

- *61. Rousseeuw, P. and Netanyahu, N. (1992), “New Statistical and Computational Aspects of the Repeated Median Line,” Workshop on *Data Analysis and Robustness*. Ascona (Switzerland), 29 June – 3 July.
- *62. Hössjer, O., Rousseeuw, P., and Croux, C. (1992), “Influence Function and Asymptotic Normality of the Repeated Median Slope Estimator,” Joint Statistical Meetings. Boston, 9–13 August. Organizer of the IMS session on “Robust Statistics” with invited talks by G. Bassett, S. Morgenthaler, and D. Ruppert.
- 63. Mili, L., Cheniae, M.G., Vichare, N.S., and Rousseeuw, P.J. (1992), “Algorithms for Least Median of Squares State Estimation of Power Systems,” 35th IEEE Symposium on Circuits and Systems. Washington, 10–12 August.
- *64. Rousseeuw, P. and Croux, C. (1992), “Explicit Scale Estimators with High Breakdown Point,” Second International Conference on Statistical Data Analysis Based on the L_1 -Norm and Related Methods. Neuchâtel (Switzerland), 17–20 August. Organizer of the session on “Robust Estimation” with invited talks by A. Stromberg and A. Rückstuhl.
- *65. Croux, C. and Rousseeuw, P. (1992), “Time-Efficient Algorithms for Two Highly Robust Estimators of Scale,” COMPSTAT 1992 (10th Biennial Symposium on Computational Statistics). Neuchâtel, 24–28 August.
- *66. Rousseeuw, P. (1992), “Computational Aspects of Certain Robust Estimators,” Royal Statistical Society Conference. Sheffield (UK), 9–11 September.
- 67. Mili, L., Vichare, N.S., Cheniae, M.G., and Rousseeuw, P.J. (1993), “Robust Mahalanobis Distances in Power System State Estimation,” 36th IEEE Symposium on Circuits and Systems. Detroit, 16–18 August.
- *68. Rousseeuw, P. (1993), “Identifying Multivariate Outliers and Leverage Points by means of Robust Distances,” CHESM-93 Chemometrics and Environmetrics Meeting, Bologna (Italy), 21–24 August.
- *69. Rousseeuw, P., Kaufman, L., and Trauwaert, E. (1993), “Fuzzy Nonhierarchical Clustering: A Comparison Between Different Methods Based on Scatter Matrices,” XIVèmes Rencontres Franco-Belges de Statisticiens. Namur (Belgium), 17–19 November. Was also co-editor (with J.-P. Rasson) of the proceedings.
- *70. Ruts, I. and Rousseeuw, P.J. (1993), “Computing Depth Contours of Point Clouds,” XIVèmes Rencontres Franco-Belges de Statisticiens. Namur (Belgium), 17–19 November.
- *71. Rousseeuw, P.J. (1994), “Detecting Outliers and Leverage Points by Robust Methods,” Annual Meeting of the German Statistical Association. Dortmund, 25–27 May.
- *72. (1994) Member of the Scientific Committee, *XXVIe Journées de Statistique*, Association pour la Statistique et ses Utilisations. Neuchâtel, 24–27 May.

*Invited Presentation

- *73. Rousseeuw, P.J. (1994), “Estimation with Positive Breakdown Point,” Workshop on *Robust Statistics, Data Analysis and Computer Intensive Methods*, in the honor of P.J. Huber. Bayreuth (Germany), 9–12 June.
- *74. Rousseeuw, P.J. and Croux, C. (1994), “Some Recent Developments in Positive-Breakdown Regression,” NSF/ARPA Workshop on *Performance Versus Methodology in Computer Vision*. Seattle, 24–25 June. Conference Volume, p. 7–10.
- *75. Rousseeuw, P.J. (1994), “Aspects of Positive-Breakdown Estimation,” Symposium on *Future Directions in Robust Methods and Data Analysis*. Princeton, 27 June – 1 July.
- *76. Croux, C. and Rousseeuw, P.J. (1994), “Highly Robust Regression Methods which are Also Efficient,” Joint Statistical Meetings. Toronto, 13–18 August.
- *77. Rousseeuw, P.J. (1994), “Applications of Positive-Breakdown Methods,” Second Annual Meeting of the Belgian Statistical Society. Spa (Belgium), 14–15 October.
- 78. Hubert, M. and Rousseeuw, P.J. (1995), “Robust Regression with Categorical Covariables,” Joint Statistical Meetings. Orlando, 13–17 August.
- *79. (1995) Member of the Scientific Committee, *Troisièmes Rencontres de la Société Francophone de Classification*. Namur (Belgium), 28–29 September.
- *80. Rousseeuw, P.J. (1996), “Recent Applications of Robust Statistics,” Workshop on *Mathematical Stochastics*. Oberwolfach, 10–16 March.
- 81. Rousseeuw, P.J. (1996), “Some Recent Applications of Robust Statistics,” Joint Statistical Meetings. Chicago, 4–8 August.
- *82. Rousseeuw, P.J. (1996), “Some Recent Applications of Robust Statistics,” Symposium on *Statistics and the Sciences*. Halifax (Canada), 12–16 August. Also chaired the session on *Computer Vision*.
- *83. Rousseeuw, P.J. (1996), “New Applications of Robust Methods,” COMPSTAT '96 (12th Biennial Symposium on Computational Statistics). Barcelona (Spain), 26–30 August. Also chaired a session on *Robust Statistics*.
- 84. Ruts, I. and Rousseeuw, P.J. (1996), “Investigation of the Halfspace Depth Function,” Fourth Annual Meeting of the Belgian Statistical Society. La Roche (Belgium), 10–11 October.
- *85. (1997) Member of the Scientific Committee, *Belgium/Fuzzy*, Workshop on *Fuzzy Logic and Applications*. Mons (Belgium), 24–25 April. Also co-author of two contributed papers.
- *86. Rousseeuw, P.J. (1997), “Applications of Positive-Breakdown Methods,” Interface 97 (The 29th Symposium on the Interface of Computing Science and Statistics). Houston (Texas), 14–17 May.

*Invited Presentation

- *87. Rousseeuw, P.J. and Hubert, M. (1997), “Recent Developments in PROGRESS,” Third International Conference on Statistical Data Analysis Based on the L_1 -Norm and Related Methods. Neuchâtel (Switzerland), 11–15 August. Organizer of the session on “Robust Estimation” with invited talks by J. Agulló, L. Fernholz, and R. Farebrother.
- *88. (1997) Conference Organizer of the Fifth Annual Meeting of the Belgian Statistical Society, in Mol (province of Antwerp), 9–10 October.
- *89. (1997) Plenary Speaker, Colloquium for the 30th Anniversary of the Institute of Statistics and Probability. Technical University Vienna (Austria), 17 October.
- *90. Rousseeuw, P.J. (1997), “Applying Robust Regression,” Conference on the Statistical Analysis of Large Data Sets in Business Economics. Rotterdam, 18–19 December.
- *91. Rousseeuw, P.J. (1998), “From Location Depth to the Bagplot,” Conference on Reduction of Complexity in Multivariate Data Structures. Dortmund, 14–16 May.
- *92. Rousseeuw, P.J. (1998), “Depth in Arrangements,” ACM Symposium on Computational Geometry. Minneapolis, 7-10 June.
- *93. Rousseeuw, P.J. (1998), “Recent Applications of Robust Methods,” Gordon Research Conference on Statistics in Chemistry and Chemical Engineering. Newport (Rhode Island), 28 June–3 July.
- *94. Rousseeuw, P.J. (1998), “Robust Multivariate Analysis,” Opening Lecture, 21st Biennial Conference of the Society for Multivariate Analysis in the Behavioral Sciences. Leuven (Belgium), 13-15 July.
- *95. Rousseeuw, P.J. and Van Driessen, K. (1998), “Robust Multivariate Analysis based on the MCD,” Sixth Biennial Conference of the International Federation of Classification Societies (IFCS-98). Rome, 21-24 July. Organizer of the session on “Robustness and Classification”, with talks by A. Christmann, C. Croux, P. Filzmoser and G. Pison.
- 96. Rousseeuw, P.J. and Ruts, I. (1998), “The BAGPLOT Algorithm for Bivariate Boxplots,” COMPSTAT '98 (13th Biennial Symposium on Computational Statistics). Bristol (UK), 24–28 August. Also co-author of several other papers.
- 97. Struyf, A. and Rousseeuw, P.J. (1998), “An Application of Computational Geometry to Statistics,” Sixth Annual Meeting of the Belgian Statistical Society. Houffalize (Belgium), 8-9 October.
- *98. Rousseeuw, P.J. (1998), “Regression Depth,” Workshop on Data Mining. Braunschweig (Germany), 12–13 November.
- *99. Rousseeuw, P.J. (1998), “Robust Multivariate Methods,” Annual Dutch Chemometrics Symposium, Nijmegen, 27 November.

*Invited Presentation

- *100. Rousseeuw, P.J. (1999), “Algorithms for Depth,” Workshop on Computational Geometry in Statistics, Bellairs Research Institute of McGill University, Barbados, 29 January–5 February.
- *101. Rousseeuw, P.J. and Van Driessen, K. (1999), “Practical Robust Analysis of Large Data Sets,” 23rd Annual Conference of the German Classification Society, Bielefeld, 10–12 March.
- *102. Rousseeuw, P.J. (1999), “Deepest Regression,” Workshop on Data Mining, Dortmund, 12–13 March. Also co-author of another paper.
- *103. Rousseeuw, P.J. (1999), “Algorithms for Robust Estimation in Large Data Sets,” Minerva Conference on Statistics in the Sciences: Environmetrics, Genetics, and Related Topics. Ascona (Switzerland), 24–28 May.
- *104. Rousseeuw, P.J. and Van Driessen, K. (1999), “Robust Analysis of Large Data Sets,” Interface 99 (The 31st Symposium on the Interface of Computing Science and Statistics). Chicago, 9–12 June. Also co-author of another invited paper, with S. Van Aelst.
- *105. Rousseeuw, P.J. (1999), “Computational Aspects of Regression Depth,” Joint Statistical Meetings. Baltimore, Maryland, 8–12 August.
- 106. Pison, G., Rousseeuw, P.J., Filzmoser, P., and Croux, C. (1999), “Analyse factorielle robuste,” XXIème Rencontre Franco-Belge de Statisticiens. Brussels, 25-26 November.
- *107. Rousseeuw, P.J., Van Aelst, S., and Hubert, M. (2000), “Tests based on Regression Depth,” German Open Conference on Probability and Statistics 2000. Hamburg, March 21–24.
- *108. Rousseeuw, P.J. (2000), “Depth Tests of Symmetry and Regression,” International Workshop on Goodness-of-fit Tests and Validity of Models. Paris, May 29–30, 2000.
- *109. Rousseeuw, P.J. (2000), “Robust Scatter Matrices: A Key to Multivariate Statistics,” Seventh Biennial Meeting of the International Federation of Classification Societies (IFCS-2000), Namur (Belgium), July 11–14. Also member of the Scientific Programme Committee, and organizer and chair of the invited session on Robust Multivariate Statistics.
- *110. Rousseeuw, P.J. and Van Aelst, S. (2000), “An Algorithm for Deepest Multiple Regression,” COMPSTAT 2000 (14th Biennial Symposium on Computational Statistics). Utrecht, The Netherlands, August 21–25, 2000. Also co-author of several other papers.
- *111. Rousseeuw, P.J. (2000), “Depth Tests of Symmetry and Regression,” First Brussels-Prague Statistics Seminar, Brussels, Belgium, September 8–9, 2000.
- *112. Hubert, M., Rousseeuw, P.J., and Verboven, S. (2000), “A Fast Method for Robust Principal Components with Applications to Chemometrics,” Fourth International Conference on Environmetrics and Chemometrics. Las Vegas, September 18–20, 2000.

*Invited Presentation

- *113. Rousseeuw, P.J., Van Aelst, S., Rambali, B., and Smeyers-Verbeke, J. (2000), “Deepest Regression in Analytical Chemistry,” Seventh International Conference on Chemometrics in Analytical Chemistry (CAC-2000). Antwerp, October 16–20, 2000.
- *114. Rousseeuw, P.J. (2001), “Applications of Tukey Depth,” Workshop on Contemporary Methods of Data Analysis – Theory and Practice, Buenos Aires, Argentina, March 5–9, 2001.
- *115. Organizer, Semi-annual workshop of VOC, the Dutch/Flemish Classification Society (part of the International Federation of Classification Societies). Also gave a talk on “Robust Multivariate Regression”. Antwerp, April 20, 2001.
- *116. Rousseeuw, P.J., Willems, G., Pison, G., and Van Aelst, S., “A Robust Alternative to the Multivariate Test of Hotelling,” First International Conference on Robust Statistics (ICORS 2001), Vorau, Austria, July 23–27, 2001. (Invited speaker and member of the Scientific Committee.)
- *117. Rousseeuw, P.J. and Christmann, A. (2002), “Robustness against Separation and Outliers in Binary Regression,” Second International Conference on Robust Statistics (ICORS 2002), Vancouver, Canada, May 12–18, 2002.
- *118. Rousseeuw, P.J. (2002), “Introduction to Positive-Breakdown Robust Statistics,” Annual Conference of CQA (Chicago Quantitative Alliance), Chicago, IL, September 18–19, 2002.
- *119. Invited Discussant, DIMACS Workshop on Data Depth: Robust Multivariate Analysis, Computational Geometry and Applications. Rutgers University, NJ, May 14–16, 2003.
- *120. Rousseeuw, P.J. (2003), “The Deepest Regression Method,” Seventh Purdue International Symposium on Statistics, Purdue University, June 19–24, 2003.
- *121. Co-organizer, Third International Conference on Robust Statistics (ICORS 2003), Antwerp, Belgium, July 13–18, 2003.
- *122. Rousseeuw, P.J. (2003), “The Deepest Regression Method,” Plenary presentation, XIth Conference of the Portuguese Statistical Society, Faro, September 24–27, 2003.
- *123. Invited Discussant and member of the Steering Committee, Workshop on Robustness for High-dimensional Data, Vorau, Austria, May 5–8, 2004.
- *124. Member of the Organizing Committee, Fourth International Conference on Robust Statistics (ICORS 2004), Beijing, China, July 12–16, 2004.
- *125. Hubert, M., Rousseeuw, P.J., and Vanden Branden, K. (2004), “Discussion on Location-Scale Depth,” Annual Meeting of the American Statistical Association, Toronto, August 8–12, 2004.

*Invited

- *126. Member of the Steering Committee, Workshop on Diagnostics, Robustness, Exploration and Modelling, The Open University, Milton Keynes, UK, March 30 – April 2, 2005.
- *127. Brys, G., Hubert, M., and Rousseeuw, P.J. (2005), “A Robustification of Independent Component Analysis,” Fifth International Conference on Robust Statistics (ICORS 2005), Jyväskylä, Finland, June 12–17, 2005. (Invited speaker and member of the Scientific Committee.)
- *128. Member of the Steering Committee, Workshop on Robust Classification and Discrimination, Firenze, Italy, January 23–28, 2006.
- *129. Member of the Organizing Committee, Sixth International Conference on Robust Statistics (ICORS 2006), Lisbon, Portugal, July 17–21, 2006.
- *130. Opening Talk, “Robust Multivariate Statistics,” Annual Conference of the International Association for Mathematical Geology (IAMG’06), Liège, Belgium, September 3–8, 2006.

*Invited

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Belgium

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OTHER PRESENTATIONS

1978

November 16 *Über von Mises Funktionale*, Seminar über Robuste Statistik, ETH Zürich, Switzerland.

1979

May 10 *Einige Erweiterungen des Hampelschen optimalen Robustifizierungsverfahrens*, Forschungsinstitut für Mathematik, ETH Zürich, Switzerland.

1980

May 8 *Über Tanh-Schätzungen*, Forschungsinstitut für Mathematik, ETH Zürich, Switzerland.

1983

April 7 *Optimal Search Paths for Random Variables*, Statistics Research Seminar, Mathematical Sciences Research Institute, Berkeley, California.

April 14 *Regression Analysis with High Breakdown Point*, Le Cam seminar, University of California at Berkeley.

April 26 *Least Median of Squares Regression*, University of Washington, Seattle.

May 2 *Regression with High Breakdown Point*, Harvard University, Boston.

May 4 *Robust Regression*, Massachusetts Institute of Technology.

May 5 *Regression with High Breakdown Point*, Bell Laboratories, Murray Hill, New Jersey.

December 22 *Regressieanalyse met hoog breekpunt*, Mathematisch Instituut, Universiteit van Amsterdam, The Netherlands.

1984

February 7 *Robuste Regression mit hohes Bruchpunkt*, Universität Dortmund, West Germany.

February 8 *Über S-Schätzer*, Universität Essen, West Germany.

February 10 *Robuste Regression*, Ruhr-Universität Bochum, West Germany.

- March 28 *Slagingspercentages van eerstejaars: een statistisch onderzoek*, Vrije Universiteit Brussel, Belgium.
- April 11 *Robuuste regressieanalyse and Computerprogramma's voor clusteranalyse*, Delft University of Technology, Netherlands.
- 1985**
- May 22 *Grafische Darstellungen in der Clusteranalyse*, Universität Essen, West Germany.
- September 10 *Silhouettes: a Graphical Display for Cluster Analysis*, Asian Institute of Technology, Rangsit, Thailand.
- November 21 *Robuste Regression mit Ausreißern in den erklärenden Variablen*, Technische Universität Wien, Austria.
- 1986**
- February 7 *Opsporen van uitschieters in multiple regressie*, Philips Centre for Quantitative Methods, Eindhoven, Netherlands.
- February 12 *Grafische voorstellingen in de clusteranalyse*, Rijksuniversiteit Utrecht, Netherlands.
- August 12 *Multivariate Techniques with High Breakdown Point*, University of Washington, Seattle.
- October 27 *Inleiding tot robuuste schatting*, Centre for Mathematics and Informatics, Amsterdam, Netherlands.
- December 18 *Identification des valeurs aberrantes dans la régression linéaire*, Université de Fribourg, Switzerland.
- 1987**
- February 4 *Inleiding tot robuustheidstheorie*, Technische Universiteit Eindhoven, Netherlands.
- March 10 *Robuuste regressie en het ontdekken van uitschieters*, Centraal Bureau voor de Statistiek, Voorburg, Netherlands.
- November 26 *Robuste Regression mit Ausreißern in den erklärenden Variablen*, Universität Konstanz, West Germany.
- 1988**
- February 26 *Robuste Regression mit hohem Bruchpunkt*, Universität Bern, Switzerland.
- June 14 *Identification of Multivariate Outliers and Leverage Points*, Universität Dortmund, West Germany.

June 22 *Démasquer les données atypiques multivariées avec des matrices de covariance robustes*, Université de Genève, Switzerland.

1989

May 17 *Schatters met hoog breekpunt en de identificatie van uitbijters*, Utrecht, Netherlands. (Lezingendag over robuuste methoden, Sociaal-Wetenschappelijke Sectie VVS).

May 25 *Multivariate Ausreisser*, in “Zürcher Kolloquium über anwendungsorientierte Statistik”, organized jointly by ETH and Universität Zürich, Switzerland.

October 17 *Robust Methods in Statistics*, Universidad de Valladolid, Spain.

1990

January 10 *Méthodes non paramétriques*, Université de Neuchâtel, Suisse.

February 23 *The Remedian*, Université de Genève.

March 5 *Een robuuste schattingsmethode voor zeer grote data sets*, Koninklijke Vlaamse Ingenieursvereniging, Antwerp, Belgium.

December 10 *Some Attempts at Faster Algorithms for Robust Estimation*, ETH Zürich.

December 11 *Calcul efficace pour l'estimation robuste: quelques approches*, Ecole Polytechnique Fédérale de Lausanne.

1991

March 21 *Robust Regression with High Breakdown Point*, K.U. Brabant, Tilburg (Netherlands), Center for Econometric Research.

April 25 *Recursive Estimation of Location*, Uppsala University, Sweden.

June 13 *Detection of Multivariate Outliers, with Application to Regression*, Asian Institute of Technology, Thailand.

November 21 *Méthodes de prévision*, Ecole Polytechnique Fédérale, Lausanne.

1992

January 23 *Robust Estimation of Location and Covariance Matrices*, University of Lund, Sweden.

March 19 *Robust Regression with High Breakdown Point*, Econometrisch Instituut, Erasmus Universiteit Rotterdam, Netherlands.

May 7 *Alternatives to the Median Absolute Deviation*, Mathematical Sciences Research Institute, Berkeley.

December 2 *Robust Regression with High Breakdown Point*, CORE and Institut de Statistique, UCL, Louvain-la-Neuve, Belgium.

1993

August 2 *Alternatives to the Median Absolute Deviation*, Ecole Polytechnique Fédérale, Lausanne.

September 28 *Software for Cluster Analysis*, UNESCO, Paris.

1994

June 1 *Detecting Outliers and Leverage Points by Robust Methods*, University of California at Santa Barbara.

October 20 *Robuste Skalenschätzer*, Freie Universität Berlin, Germany.

November 11 *Applications of Positive-Breakdown Estimators*, Universität Bayreuth, Germany.

1995

January 10 *Robust Methods in Computer Vision*, RUCA, Antwerp.

September 20 *Applications of Positive-Breakdown Methods*, Technical University Delft, The Netherlands.

1996

June 10–14 Series of talks on Robust Regression and Cluster Analysis. Workshop at SAS Institute, Cary, North Carolina.

1997

January 10 *Modern Applications of Positive-Breakdown Methods*, ETH Zürich, Switzerland.

March 15–19 Series of talks on *Robust Statistics*. Universidad Publica de Navarra, Pamplona, Spain.

April 17 *Recent Developments in Robust Estimation of Multivariate Location and Scatter* (with G. Haesbroeck). Université de Liège (for the Three Country Corner of the Royal Statistical Society).

April 25 *L' échantillonnage par stratification*, Université de Neuchâtel.

May 7 *Some Applications of Positive-Breakdown Methods*, Universitair Centrum voor Statistiek, K.U. Leuven.

December 5 *An Overview Starting from the Basics of Robust Methods to some Technological Applications*, Universität Dortmund (Herbstkolloquium des Graduiertenkollegs über Angewandte Statistik).

1998

- March 31 *Depth Functions*, Columbia University, New York.
- April 1 *Regression Depth*, Rutgers, New Brunswick.
- April 2 *The Deepest Fit*, Bell Labs, Murray Hill.
- May 27 *Regression Depth*, ETH Zürich, Switzerland.
- June 11 *Regression Depth*, University of Illinois at Urbana-Champaign.

1999

- February 24 *Applications of Robust Statistics*, Universidade de Lisboa, Portugal.
- February 26 *Regression Depth and Computational Geometry*, Instituto Superior Técnico, Lisbon, Portugal.
- April 16 *Applications of Robust Methods*, MATFORSK: The Norwegian Food Research Institute, Oslo, Norway.
- June 2 *Robust Methods in Chemometrics*, Unilever, Vlaardingen, The Netherlands.
- September 24 *La profondeur d'une régression*, ENSAI (Ecole Nationale de la Statistique et de l'Analyse de l'Information), Bruz (Rennes), France.

2000

- September 15 *Tests Based on Regression Depth*, Arizona State University, Tempe, Arizona.
- September 21 *Algorithms for Regression Depth*, University of British Columbia, Vancouver, Canada.
- October 27 *The Deepest Regression Method*, Universitat Pompeu Fabra, Barcelona, Spain.

2001

- January 16 *Depth Tests of Symmetry and Regression*, Universität Dortmund, Germany.
- January 22 *The Deepest Regression Method*, Université Paul Sabatier, Toulouse, France.