Curriculum Vitae Remco van der Hofstad

1 Personal details and work experience

1a. Personal details

Name	• Prof. dr. Remco W. van der Hofstad
Male/Female	• Male
Date and place of birth	• May 3, 1971, Eindhoven
Postal address	• Department of Mathematics and Computer Science, Eindhoven University of Technology, P.O. Box 513, 5600 MB Eindhoven, The Netherlands.
Telephone	• ++31-402472910.
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E-mail	• `rhofstad@win.tue.nl`
Web address	• `http://www.win.tue.nl/~rhofstad/`
Marital status	• married and the proud father of two sons
Languages	• Dutch, English, French and German
Nationality	• Dutch.

1b. Master's

1989-1993	• Master's in Mathematics at the University of Utrecht, The Netherlands.
1992-1993	• Master Class "Probability and Statistics": A special one year masters for Dutch and foreign students, organized by the Mathematical Research Institute.
Diplomas	• June 28, 1993: Master Class certificate August 30, 1993: Master's degree in Probability Theory, cum laude.
Master's Thesis	• Scaling for a random polymer.
Supervisor	• Frank den Hollander.

1c. Doctorate

1993-1997	• PhD-position at the University of Utrecht.
Supervisors:	• Frank den Hollander and Richard Gill.
Thesis defence date	• June 16, 1997.
Title of thesis	• One-dimensional random polymers.

1d. Work experience since graduation

1997-1998	• Post-doctoral fellow at McMaster University, Hamilton, Ontario, Canada.
January-June 1998	• Visiting Researcher, Theory Group, Microsoft Research, Redmond, Washington State, USA.
1998–2002	• Assistant professor at Delft University of Technology, Delft, The Netherlands.
February 2002 –December 2004	• Associate Professor at Eindhoven University of Technology, The Netherlands.
2002–2004	• Senior research fellow at EURANDOM, Eindhoven, The Netherlands.
January 2004–now	• Scientific advisor of the 'Random Spatial Structures' programme at EURANDOM, Eindhoven, The Netherlands.
January 2005–now	• Full Professor in Probability at Eindhoven University of Technology,

The Netherlands.

1e. Prizes and awards

September 2003	• Laureate of 'Innovative Research Grant: VIDI Scheme' of Netherlands Organisation for Scientific Research (600,000 euro in 2004-2009)
December 2003	• Henri Poincare prize 2003, jointly with Gordon Slade.
2007	• Rollo Davidson Prize 2007.
December 2009	• Laureate of 'Innovative Research Grant: VICI Scheme' of Netherlands Organisation for Scientific Research (1,250,000 euro in 2009-2014).

1f. Other academic activities

1994-95	• Marketing course (diploma NIMA A May 18 1995).
1996	• Management course organized by the Center for Management at the University of Utrecht (diploma April 17 1996).
1997	• Presentation course "Making formal presentations: Lecturing", McMaster University, Hamilton, Canada.
1999-now	• Organizer of the Mark Kac Seminar, a Dutch seminar on Statistical Physics for an audience of probabilists and theoretical physicists.
1993-now	• Referee for Annals of Probability, Probability Theory and Related Fields, Communications in Mathematical Physics, Bernoulli, IEEE Transactions on Information Theory, Journal of Physics A.
1998-2002	• Supervisor of Marten J. Klok jointly with G. Hooghiemstra. Klok received his PhD at Delft UT on April 8, 2002.
2001	• Statistical Analysis of Internet Data NWO Grant in "NWO Networking" program jointly with G. Hooghiemstra (Principal Investigator) and P. Van Mieghem (Delft UT). Postdoc: Dr. D.N. Znamenski (EURANDOM) October 2003-April 2006.
2003	• Supervisor of Anne Fey, a 'Teacher in Research' (Leraar in Onderzoek).
September 2003	• NWO 'Innovative research grant VIDI Scheme' (600,000 euro).
2002-now	• Responsible for the probability teaching curriculum at Eindhoven University of Technology.
2003-now	• Organizing committee 'Young European Probabilists', a series of three workshops at EURANDOM directed at young probabilists.
March 2004	• Organisor of workshop 'Conformal Invariance, Scaling Limits and Percolation' (jointly with Nina Gantert) first in the series of YEP conferences.
April 2004	• Akira Sakai started as postdoc on VIDI project.
2004	• Member of the VENI selection committee.
October 2004	• Markus Heydenreich starts as PhD-student on VIDI project.
September 2005	• Mark Holmes starts as postdoc on VIDI project.
January 2006	• Organisor of the 'Study Group Mathematics and Industry at TU/e.
September 2006	• Organisor of 'Spatial Random Processes and Statistical Mechanics' conference in Oberwolfach.
September 2006	• Associate Editor of 'Advances in Applied Probability'.
March 2007	• Organisor of YEP conference at EURANDOM on 'Random Graphs and Complex Networks'.
2006-now	• Associate editor of Advances in Applied Probability.
March 2007	• Co-organisor of YEP conference at EURANDOM on 'Random Graphs and Complex Networks' (jointly with Mia Deijfen).

2006-2008	• Member of the ARW-OOW Strategiecommissie.
July 2007	• Programme committee INFORMS Applied Probability Conference, EURANDOM.
Sept. 2007-now	• Staff member 'Honors Progam' TU/e.
August 2008	• Guest editor special issue *Statistica Neerlandica* for 10^{th} anniversary EURANDOM.
February 2009	• Programme committee 'Workshop on Algorithms and Models' for the Web Graph 2009, Barcelona.
December 2008	• NWO 'Innovative research grant VICI Scheme' (1,250,000 euro).
December 2008	• NWO 'Open Competition' grant (182,495 euro).
August 2009	• Co-organisor of 'Scaling Limits in Models of Statistical Mechanics' conference in Oberwolfach.

2 Research

My research is focussed on the themes percolation, random graph models for complex networks, self-interacting random processes, and applications of probability. I shall now describe these topics in more detail.

2a. Percolation

Percolation is one of the paradigm models in statistical physics, displaying extremely rich critical behavior. It is a model of a porous medium, where the materials consist of substance and holes. My main focus of research in the past period has been on the study of percolation models close to criticality for high-dimensional systems.

My research has primarily focussed on

1. the investigation of large high-dimensional critical percolation clusters, by proving that the scaling limit of large high-dimensional critical percolation clusters is a measure-valued diffusion called super-Brownian motion and that critical percolation in sufficiently high-dimensions has an incipient infinite cluster;

2. the characterization of the phase transition of percolation on large high-dimensional tori, and to prove that this phase transition is close to the one on the Erdős-Rényi random graph.

2b. Random Graphs and Complex Networks

In the past decade, it has become clear that many real networks share fascinating features in being small worlds and scale-free. Such networks are typically modeled using *random graphs*. Random graphs are closely related to percolation, the difference being that random graphs tend to have finite size, while percolation systems tend to be infinite. The empirical findings on real networks have ignited research on various models for complex networks. The focus of the research of the group was the study of distances in models of complex networks where power-law degrees are observed.

My research has primarily focussed on studying distances in random graphs. These models include the configuration model, various versions of generalized random graphs, and preferential attachment models.

The goal is to show that there is different scaling in the distances when the exponent of the power laws in the random graphs changes. When this exponent is such that the degrees have finite variance , then the distances grow logarithmically with the size of the graph. When this exponent is such that the degrees have finite mean but infinite variance, then the distances grow doubly logarithmically with the size of the graph. When this exponent is such that the degrees have infinite mean, then the distances remain bounded when the size of the graph increases.

Other aspects that draw my attention is the size of the connected components and the related phase transitions.

A key question in random graph theory is to what extend they are *universal*, that is, to what extent models with similar properties show similar behavior.

2c. Self-interacting Random Processes

My research on Self-interacting random processes has been focussed on several models:

1. One-dimensional and high dimensional polymer models;
2. Various self-interacting random walks, such as reinforced random walks, excited random walks and loop-erased random walks;
3. Large deviations for random walk local times, and various consequences in related models, such as the Parabolic Anderson model and random walk in random scenery.

In this research, we make use of two key methods, namely, large deviations and combinatorial expansion techniques for high-dimensional systems (the lace expansion).

In one dimensions, the results focus on law of large numbers, central limit theorem and large deviation principles for the end-to-end distance of the polymer in the limit as its length gets large. In high dimensions, we have proved diffusive behavior of various self-avoiding walk models, as well as of networks of such self-avoiding walks. A key question is whether one can extend the combinatorial expansion techniques to deal with self-interacting stochastic processes. In the parabolic Anderson model, the result focus on the universality properties of the solution to the parabolic Anderson equation, when the field is i.i.d., as a function of the tail behavior of the field.

2d. Applications of Probability

I have always been interested in applications of probability, particularly in electrical engineering, computer science and theoretical physics. A list of problems that I have worked on is as follows:

1. With several researchers in electrical engineering, I have contributed to the analytical study of several multiuser detection systems , particularly using parallel interference in DS-CDMA systems (with Marten Klok, Gerard Hooghiemstra, Anne Fey, Franck Vermet and Matthias Löwe);
2. We have further studied the multicarrier interference properties of OFDM systems (with Tim Schenk, Erik Fledderus and Peter Smulders);
3. We are currently investigating the properties of digital-to-analog (DAC) converters, using a reformulation in terms of Brownian bridges.
4. A further topic of current research consists of the security aspects of several random algorithms in a network. What systems performs best, and how is it related to the topology of the network?

3 List of publications

3a. International (refereed) journals

1. R. van der Hofstad and F. den Hollander, Scaling for a random polymer, Communications in Mathematical Physics **169**: 397-440 (1995).
2. R. van der Hofstad, F. den Hollander and W. König, Central limit theorem for the Edwards model, Annals of Probability **25**: 573–597 (1997).
3. R. van der Hofstad, F. den Hollander and W. König, Central limit theorem for a weakly interacting polymer, Markov Processes and Related Fields **3**: 1–63 (1997).
4. R. van der Hofstad, On the constants in the central limit theorem for the one-dimensional Edwards model, Journal of Statistical Physics, **90**, 5/6: 1295–1310 (1998).

5. R. van der Hofstad, F. den Hollander and G. Slade, An inductive approach to the lace expansion for self-avoiding walks, Probability Theory and Related Fields, **111**: 253–286 (1998).

6. C. Borgs, J. Chayes, R. van der Hofstad and G. Slade, Mean-field lattice trees, Annals of Combinatorics, **3**: 205-221 (1999).

7. R. van der Hofstad and A. Klenke, Self-attractive random polymers, Annals of Applied Probability **11**, no. 4: 1079–1115 (2001).

8. R. van der Hofstad, The lace expansion approach to ballistic behaviour for one-dimensional weakly self-avoiding walk, Probability Theory and Related Fields **119**: 311-349 (2001).

9. R. van der Hofstad and W. König, A survey of one-dimensional random polymers, Journal of Statistical Physics **103**, 5/6: 915-944 (2001).

10. R. van der Hofstad, G. Hooghiemstra and P. Van Mieghem, First passage percolation on the random graph, Probability in the Engineering and Informational Sciences, **15**, 225-237 (2001).

11. P. Van Mieghem, G. Hooghiemstra and R. van der Hofstad, On the efficiency of multicast, IEEE Transactions on Networking, **9** Nr. 6: 719-732 (2001).

12. R. van der Hofstad and G. Slade, A generalised inductive approach to the lace expansion, Probability Theory Related Fields, **122**:389–430, (2002).

13. R. van der Hofstad, A. Klenke and W. König, The critical attractive random polymer in dimension one, Journal of Statistical Physics **106**, no. 3-4: 477–520 (2002).

14. R. van der Hofstad, G. Hooghiemstra and M.J. Klok, Large deviations for code division multiple access systems, SIAM Journal of Applied Mathematics **62**, no. 3: 1044–1065 (2002).

15. M.J. Klok, R. van der Hofstad and G. Hooghiemstra, Analytical methods for CDMA systems with parallel interference cancellation: the large deviation approach, Wireless Personal Communications, **21**: 289-307 (2002).

16. R. van der Hofstad, G. Hooghiemstra and P. Van Mieghem, On the covariance of the level sizes in random recursive trees, Random Structures and Algorithms, **20**, no. 4: 519-539 (2002).

17. R. van der Hofstad, F. den Hollander and G. Slade, Construction of the incipient infinite cluster for spread-out oriented percolation above $4+1$ dimensions, Communications in Mathematical Physics, **231**: 435–461 (2002).

18. R. van der Hofstad, G. Hooghiemstra and P. Van Mieghem, The flooding time in random graphs, Extremes **5**: 111-129 (2002).

19. T. Hara, R. van der Hofstad and G. Slade, Critical two-point functions and the lace expansion for spread-out high-dimensional percolation and related models, Annals of Probability **31**: 349-408 (2003).

20. R. van der Hofstad and G. Slade, The lace expansion on a tree with application to networks of self-avoiding walks, Advances in Applied Mathematics **30**: 471-528 (2003).

21. R. van der Hofstad, F. den Hollander and W. König, Weak interaction limits for one-dimensional random polymers, Probability Theory and Related Fields **125**: 483-521 (2003).

22. R. van der Hofstad and G. Slade, Convergence of critical oriented percolation to super-Brownian motion above $4+1$ dimensions, Annales de l'Institut Henri Poincaré: Probabilités et Statistiques **39**: 413-485 (2003).

23. R. van der Hofstad, F. den Hollander and W. König, Large deviations for the one-dimensional Edwards model. Annals of Probability **31**: 2003-2039 (2003).

24. R. van der Hofstad and M.J. Klok, Performance for DS-CDMA Systems with Optimal Hard Decision Parallel Interference Cancellation. IEEE Transactions on Information Theory **49**, Nr 11: 2918-2940 (2003).

25. R. van der Hofstad and A.A. Járai, The incipient infinite cluster for high-dimensional unoriented percolation. Journal of Statistical Physics **114**:625–663 (2004).

26. R. van der Hofstad and A. Sakai, Gaussian scaling for the critical spread-out contact process above the upper critical dimension, Electronic Journal of Probability **9**: 710-769 (2004).

27. R. van der Hofstad and M.J. Klok, Improving the performance of 3G communication systems: the hard decision case. Advances in Applied Probability **36**: 1046-1084, (2004).

28. R. van der Hofstad and A. Sakai. Critical points for spread-out self-avoiding walk, percolation and the contact process above the upper critical dimension. Probability Theory and Related Fields **132**: 438-470, (2005).

29. R. van der Hofstad, G. Hooghiemstra and P. Van Mieghem. Random graphs with finite variance degrees. Random Structures and Algorithms **26**: 76-123, (2005).

30. R. van der Hofstad. Spread-out oriented percolation and related models above the upper critical dimension: Induction and Super-Processes, Ensaios Matematicos **9**: 91–181, (2005).

31. C. Borgs, J.T. Chayes, R. van der Hofstad, G. Slade and J. Spencer. Random subgraphs of finite graphs: I. The scaling window under the triangle condition. Random Structures and Algorithms **27**: 137-184, (2005).

32. R. van der Hofstad and G. Slade. Asymptotic expansion in n^{-1} for percolation critical values on the n-cube and $\mathbb{Z}^n$. Random Structures and Algorithms **27**: 331-357, (2005).

33. C. Borgs, J.T. Chayes, R. van der Hofstad, G. Slade and J. Spencer. Random subgraphs of finite graphs: II. The lace expansion and the triangle condition. Annals of Probability **33**: 1886–1944, (2005).

34. N. Gantert, R. van der Hofstad and W. König. Deviations of a random walk in a random scenery with stretched exponential tails. Stochastic Process. Appl. **116**: 480–492, (2006).

35. R. van der Hofstad and F. Redig. Maximal clusters in non-critical percolation and related models. Journal of Statistical Physics **122** (4): 670-703, (2006).

36. H. van den Esker, R. van der Hofstad, G. Hooghiemstra and D. Znamenski. Distances in random graphs with infinite mean degrees. Extremes **8** (3): 111-141, (2006).

37. R. van der Hofstad, M. Löwe and F. Vermet. The effect of system load on the existence of bit-errors in CDMA with and without parallel interference cancelation. *IEEE Transactions on Information Theory Correspondence* **52**(10), 4733–4741, (2006).

38. R. van der Hofstad, W. König and P. Mörters. The universality classes in the parabolic Anderson model. *Comm. Math. Phys.* **267**(2), 307–353, (2006).

39. R. van der Hofstad and J. Spencer. Counting Connected Graphs Asymptotically. *European Journal on Combinatorics*, **26** (8): 1294–1320, (2006).

40. C. Borgs, J.T. Chayes, R. van der Hofstad, G. Slade and J. Spencer. Random subgraphs of finite graphs: III. The phase transition for the n-cube. *Combinatorica* **26**(4): 395-410, (2006).

41. R. van der Hofstad. Infinite canonical super-Brownian motion and scaling limits. *Comm. Math. Phys.* **265**(3), 547–583, (2006).

42. R. van der Hofstad and G. Slade. Expansion in n^{-1} for percolation critical values on the n-cube and $\mathbb{Z}^n$: the first three terms. Combinatorics, Probability and Computing **15**: 695–713, (2006).

43. R. van der Hofstad, G. Hooghiemstra and P. Van Mieghem. Size and weight of shortest path trees with exponential link weights. Combinatorics, Probability and Computing **15**: 903–926, (2006).

44. M. Heydenreich and R. van der Hofstad. Random graph asymptotics on high-dimensional tori. Communications in Mathematical Physics **270** (2): 335–358, (2007).

45. G. Radulov, M. Heydenreich, R. van der Hofstad, J.A. Hegt and A.H.M. van Roermund. Brownian Bridge based statistical analysis of the DAC INL caused by current mismatch. IEEE Transactions on Circuits and Systems II: Express Briefs **54**(2): 146–150, (2007).

46. R. van der Hofstad. Random networking: between order and chaos. Nieuw Archief voor Wiskunde, **(5)8**(1): 18–24, (2007).

47. R. van der Hofstad, F. den Hollander and G. Slade. The survival probability for critical spread-out oriented percolation above 4+1 dimensions. I. Induction. Probability Theory and Related Fields, **138**(3-4): 363–389, (2007).

48. R. van der Hofstad, F. den Hollander and G. Slade. The survival probability for critical spread-out oriented percolation above 4+1 dimensions. II. Expansion. Annales de l'Intitut Henri Poincaré: Probabilités et Statistiques **5**(5): 509–570, (2007).

49. T. Schenk, R. van der Hofstad, E. Fledderus and P. Smulders. Distribution of the ICI term in Phase Noise impaired OFDM systems. IEEE Transactions on Wireless Communication **6**(4): 1488–1500, (2007).

50. D. Brydges, R. van der Hofstad and W. König. Joint density for the local times of continuous-time Markov chains. Annals of Probability **35**(4): 1307-1332, (2007).

51. R. van der Hofstad, G. Hooghiemstra and D. Znamenski. Distances in random graphs with finite mean and infinite variance degrees. Electronic Journal of Probability. **12**: 703–766, (2007).

52. R. van der Hofstad, G. Hooghiemstra and P. Van Mieghem. The Weight of the Shortest Path Tree. Random Structures and Algorithms **30**(3): 359–379, (2007).

53. R. van der Hofstad and W. Kager. Pattern theorems, ratio limit theorems and Gumbel maximal clusters for random fields. Journal of Statistical Physics **130**(3): 503-522, (2008).

54. R. van der Hofstad, M. Holmes and G. Slade. Extension of the generalised inductive approach to the lace expansion. Electronic Communications in Probability **13**: 291-301, (2008).

55. M. Heydenreich, R. van der Hofstad and A. Sakai. Mean-field behavior for long- and finite range Ising model, percolation and self-avoiding walk. Journal of Statistical Physics **132**(5): 1001-1049, (2008).

3b. Books, or contributions to books

1. R. van der Hofstad, One-dimensional random polymers, CWI Tract **123**, Stichting Mathematisch Centrum, Amsterdam (1998).

3c. Conference Proceedings and Other Publications

1. M.J. Klok, G. Hooghiemstra, R. van der Hofstad, T. Ojanperä and R. Prasad, Large Deviations for CDMA with Interference Cancellation, Conference proceedings of the VTC'99 conference Amsterdam, September 19-22 1999, volume 1, 187–191 (1999).

2. R. van der Hofstad and M.J. Klok, Performance analysis of DS-CDMA systems with multistage HD-PIC, Conference proceedings of ICPWC 2000.

3. M.J. Klok and R. van der Hofstad, Performance analysis of DS-CDMA systems with one-stage HD-PIC, Conference proceedings of ICPWC 2000.

4. P. Van Mieghem, G. Hooghiemstra and R. van der Hofstad, Stochastic model for the number of traversed routers in Internet, Conference proceedings of Passive and Active Measurements, April 23-24, 2001, in Amsterdam, the Netherlands.

5. A. Fey-den Boer, R. van der Hofstad and M.J. Klok. Linear Interference Cancelation Properties related to Eigenvalues of a Random Matrix. Symposium IEEE Benelux Chapter on Communications and Vehicular Technology, 13 november 2003, Technische Universiteit Eindhoven.

6. R. van der Hofstad. Random networking: between order and chaos (Intreerede TU/e 22-09-2006) Eindhoven: Technische Universiteit Eindhoven. ISBN 978-90-386-0796-2, NUR 919, (2006).

7. M. Bijvank, M. Dobber, M. Soomer, Q. Botton, E. de le Court, J.-C. Van den Schrieck, M. de Viron, M. Cisneros-Molina, K. Schmitz, R. van der Hofstad, E. Jochemsz, T. Mussche, M. Summer, M. Hoekstra, J. Mulder, M. Paelinck. Planning drinking water for airplanes. Proceedings of the Fifty-Second European Study Group with Industry, CWI Syllabi, **55**: 53–71, Centrum Wisk. Inform., Amsterdam, (2006).

8. P. Korteweg, M. Nuyens, R. Bisseling, T. Coenen, H. van den Esker, B. Frenk, R. de Haan, B. Heydenreich, R. van der Hofstad, J. in 't Panhuis, L. Spanjers and M. van Wieren. Math saves the forest: analysis and optimization of message delivery in wireless sensor networks. Proceedings of the 55^{th} European Study Group Mathematics in Industry. Eindhoven, 2006.

9. E. Fledderus, R. van der Hofstad, E. Jochemsz, J. Molenaar, T. Mussche, M. Peletier, G. Prokert. Editors of Proceedings of the Study Group Mathematics in Industry, Eindhoven, 2006.

3d. Preprints

1. R. van der Hofstad. Percolation and random graphs. To appear as section of book 'New Perspectives in Stochastic Geometry' edited by I. Molchanov and W. Kendall.
2. R. van der Hofstad and G. Hooghiemstra. Universality for distances in power-law random graphs. To appear in Journal of Mathematical Physics.
3. R. van der Hofstad, M.J. Luczak and J. Spencer. The second largest component in the supercritical 2D Hamming graph. To appear in Random Structures and Algorithms.
4. H. van den Esker, R. van der Hofstad and G. Hooghiemstra. Universality for the distance in finite variance random graphs. To appear in Journal of Statistical Physics.
5. R. van der Hofstad, G. Hooghiemstra and D. Znamenski. A phase transition for the diameter of the configuration model. To appear in Internet Mathematics.
6. M. Deijfen, H. van den Esker, R. van der Hofstad and G. Hooghiemstra. A preferential attachment model with random initial degrees. To appear in Arkiv för Matematik.
7. R. van der Hofstad and M. Keane. An elementary proof of the hitting time theorem. To appear in the American Mathematical Monthly.
8. R. van der Hofstad and M.J. Luczak. Random subgraphs of the 2D Hamming graph: The supercritical phase. To appear in Probability Theory and Related Fields.
9. R. van der Hofstad, P. Mörters and N. Sidorova. Weak and almost sure limits for the parabolic Anderson model with heavy tailed potentials. To appear in Annals of Applied Probability.
10. G. Radulov, M. Heydenreich and R. van der Hofstad. Functionals of Brownian bridges arising in the current mismatch in D/A-converters. To appear in Probability in the Engineering and Informational Sciences.
11. A. Fey-den Boer, R. van der Hofstad and M.J. Klok. Large deviations for eigenvalues of correlation matrices. Preprint (2004). To appear in Advances in Applied Probability (2008).
12. R. van der Hofstad and M. Holmes. An expansion for self-interacting random walks. Preprint December 19, 2006.
13. R. van der Hofstad and A. Sakai. Convergence of the critical finite-range contact process to super-Brownian motion above the upper critical dimension: I. The higher-point functions Preprint September 9, 2008.
14. R. van der Hofstad, W. Kager and T. Muller. A local limit theorem for the critical random graph. Preprint June 18, 2008.
15. R. van der Hofstad and G. Hooghiemstra. Diameters in preferential attachment models. Preprint May 11, 2007.

4 Teaching

4a. Teaching experience in the past five years

At Delft University of Technology, I was responsible for a third year evening class on statistics for computer science students, and for an applied statistics course for technical management students. Apart from that, I was teaching problem classes. In the course for technical management students, I supervised a group of two TA's and two lecturers teaching the problem and computer classes. I was also responsible to update the lecture notes and style these in a more modern fashion.

At Eindhoven University of Technology, I was involved in setting up many new courses, both for the Master's in Statistics, Probability and operations Research, as well as in the bachelor's, mainly for the probability curriculum. Apart from this, and mainly with Alessandro Di Bucchianico, we have innovated the teaching in the Probability and Statistics curriculum. For example, I have set-up a course where students in mechanical engineering learn the basics in statistics through a case study. Even though it is harder to make such courses into a success, I find it rather challenging, and find it quite rewarding when the students are enthusiastic.

4b. Teaching statement

As a lecturer, I find it essential to get as much response as possible from my students. In a course for about 100 students, this is difficult, but still I manage to attract questions from the audience. I am at my best improvising at such occasions, and my enthusiasm stimulates the students to come forward with questions when these arise.

I am keen to use new technology in teaching. For example, the website for the course for technical management students attracted 6,000 hits in the academic year 2001-2002. On this website, all the information concerning the classes could be found, transparancies could be downloaded and printed, etc. This is an efficient way to communicate with students especially when classes are large. Also the other courses that I am currently involved in have web sites. The URL's can be found below.

I am open to different forms of teaching from the usual lectures followed by problem classes. The more traditional approach is in many cases optimal, but sometimes it can be supplemented with a more practical approach, using e.g. case studies or laptops during lectures. Especially in statistics courses for different disciplines, practical problems make it crystal clear what the purpose of statistics is, and why the course material is relevant in practice. Probability and statistics, the disciplines in which I have most of my teaching experience, are difficult subjects. I find it essential that it is clearly explained why we do what we do.

4c. Courses taught

1. Mathematics for Engineers, course on Probability, Statistics, Ordinary and Partial Differential Equations, 1997-1998, McMaster University.
2. Probability and Statistics for Technical Earth Science Students, 1998-1999, Delft.
3. Probability for Computer Science Students, evening class, 1998-1999, Delft.
4. Probability for Computer Science Students, problem class, 1998-1999 and 1999-2000, Delft.
5. Statistics for Computer Science Students, evening class with computer lab in S-plus, 1999-2000 and 2000-2001, Delft.
6. Statistics and Data Analysis for Technical Management Students, 1999-2000 and 2000-2001, Delft.
7. OGO-casus for mechanical engineering, Eindhoven University of Technology, 2002-2003, in which students learn the basics of statistics trough a case study.
8. Probability and Statistics for Math Students, problem class, 2001-2002 and 2002-2003, Eindhoven University of Technology.
9. Elective course in Applied Probability for third year Math Students, jointly with Frank den Hollander and Frank Redig, 2002-2003 and 2003-2004, Eindhoven University of Technology.
10. Course in Probability and Applications in the Master's Track Statistics, Probability and Operations Research (SPOR), jointly with Frank den Hollander, 2003-2004, Eindhoven University of Technology.
11. Probability and Applications in the Master's Track Statistics, Probability and Operations Research (SPOR), 2004-2005, Eindhoven University of Technology.
12. Random Graphs and Complex Networks in the Master's Track Statistics, Probability and Operations Research (SPOR), 2005-2006, Eindhoven University of Technology.
13. Probability and Statistics for Math Students, 2004-2005, 2005-2006 Eindhoven University of Technology.
14. Several problem classes in Statistics for different disciplines, 2001-2004, Eindhoven University of Technology.
15. Random Graphs course for Master students in Mathematics, 2005-2008, Eindhoven University of Technology.