**Template CV of the scientist in charge**

Please complete the form in typescript.

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| **I. Personal details** | |
| Title (Mrs, Ms, Mr) | Mr |
| Last name (as in passport) | Skogestad |
| First name (as in passport) | Sigurd |
| Former last name (as in your passport) | - |
| Date of birth (dd/mm/yyyy) | 14/08/1955 |
| Place of birth | Flekkefjord, Norway |
| Nationality | Norwegian |
| Present professional position | Professor at Department of Chemical Engineering, NTNU |

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| **II. Contact details** | |
| Institution | Norwegian University of Science and Technology (NTNU) |
| Address (Street, No.) | Sem Saelands vei 4 |
| Postal code | N-7491 |
| City | Trondheim |
| Country | Norway |
| E-mail | skoge@ntnu.no |
| Phone number | +47 7359 4154 |

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| --- | --- | --- | --- | --- |
| **III. Academic/professional record in chronological order** | | | | |
| From  (dd/mm/yyyy) | Until  (dd/mm/yyyy) | Position | Institution, city, country | Degrees/remarks |
|  | 1978 |  | NTNU, Trondheim, Norway | M.Sc. in Chemical Engineering |
|  | 1979 | Military Service | Norwegian Defence Research Center |  |
| 1980 | 1983 | Research engineer | Norsk Hydro Research Center, Porsgrunn, Norway |  |
| 1983 | 1987 | Ph.D. student and research assistant | California Institute of Technology, Pasadena, California, U.S.A. | Ph.D. |
| 1987 | present | Professor in Chemical Engineering | NTNU, Trondheim, Norway |  |
| 1994 | 1995 | Visiting Professor | University of California, Berkeley, California, U.S.A. |  |
| 2001 | 2002 | Visiting Professor | University of California, Santa Barbara, California, U.S.A. |  |
| Jan. 1999 | July 2009 | Head of Department of Chemical Engineering | NTNU, Trondheim, Norway |  |
| Degrees: please list the type of degree and the field of study/research.  Fellowships: please provide the name of the funding body.  Split positions: please indicate the time spent on research in % (e.g. research 70%, teaching 30%).  Career breaks: please give a reason (e.g. parental leave, military service). | | | | |

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| **IV. Academic profile** | |
| Research area(s) | • Plantwide control and optimization (including self-optimizing control)  • Feedback as a tool to reduce the effect of uncertainty (including robust control)  • PID controller tuning  • Control structure design (including decentralized control)  • Model development and model-based control system design  • Design and control of distillation processes (continuous and batch)  • Stabilization of chemical processes and fluid flow |
| Date when PhD degree was awarded | February, 1987 |
| University where PhD was obtained | California Institute of Technology, Pasadena, California, U.S.A. |
| Main contributions/summary of research interests (max. 1000 words) | The overall objective and interest is to develop simple yet rigorous methods to solve problems of engineering significance. Research interests include the use of feedback as a tool to (1) reduce uncertainty (including robust control), (2) change the system dynamics (including stabilization), and (3) generally make the system more well-behaved (including self-optimizing control).  Other interests include limitations on performance in linear systems, control structure design and plant wide control, interactions between process design and control, and distillation column design, control and dynamics. |

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| **V. Proof of scientific excellence** |
| 1. List of all publications in the last 5 years |
| **Books**  S. Skogestad, ``Chemical and Energy Process Engineering'' CRC Press (Taylor & Francis Group), 450 pages, 2009.  **Book chapters**   1. Ivar J. Halvorsen, Sigurd Skogestad ``Minimum Energy Operation of Petlyuk Distillation Columns - Nonsharp Product Specifications'', Proceedings of the 1st Annual Gas Processing Symposium, 2009, Pages 79-87, Elsevier, ISBN-13: 978-0-444-53292-3. 2. Jørgen Bauck Jensen, Sigurd Skogestad `` Single-cycle mixed-fluid LNG process Part I: Optimal design'', Proceedings of the 1st Annual Gas Processing Symposium, H. Alfadala, G.V. Rex Reklaitis and M.M. El-Halwagi (Editors). 2009, Pages 211-218, Elsevier. ISBN-13: 978-0-444-53292-3. 3. Jørgen Bauck Jensen, Sigurd Skogestad ``Single-cycle mixed-fluid LNG process Part II: Optimal operation'', Proceedings of the 1st Annual Gas Processing Symposium, H. Alfadala, G.V. Rex Reklaitis and M.M. El-Halwagi (Editors). 2009, Pages 219-226, Elsevier. ISBN-13: 978-0-444-53292-3. 4. Mehdi Panahi, Mehdi Karimi, Sigurd Skogestad, Magne Hillestad, Hallvard F. Svendsen ``Self-Optimizing and Control Structure Design for a CO2 Capturing Plant'', Advances in Gas Processing (Volume 2). Proceedings of the 2nd Annual Gas Processing Symposium, F. T. Eljack, G.V. Rex Reklaitis and M.M. El-Hawagi (Editors). 2010, Pages 331-338, Elsevier ISBN-978-0-444-53588-7 5. Mehdi Panahi, Sigurd Skogestad, Ramprasad Yelchuru ``Steady State Simulation for Optimal Design and Operation of a GTL Process'', Advances in Gas Processing (Volume 2). Proceedings of the 2nd Annual Gas Processing Symposium, F. T. Eljack, G.V. Rex Reklaitis and M.M. El-Hawagi (Editors). 2010, Pages 275-284, Elsevier, ISBN-978-0-444-53588-7 6. Johannes Jäschke and Sigurd Skogestad, ``Measurement Polynomials as Controlled Variables'', In: Selected topics on constrained and nonlinear control, Editors: M. Huba, S. Skogestad, M. Fikar, M. Hovd, T.A. Johansen and B.Rohal-Ilkiv. Published by STU Bratislava and NTNU Trondheim, Jan. 2011. ISBN-978-80-968627-4-0, pp. 1-26. 7. Johannes Jäschke and Sigurd Skogestad, ``Measurement Polynomials as Controlled Variables - Exercises'', In: Selected topics on constrained and nonlinear control. Workbook, Editors: M. Huba, S. Skogestad, M. Fikar, M. Hovd, T.A. Johansen and B.Rohal-Ilkiv. Published by STU Bratislava and NTNU Trondheim, Jan. 2011. ISBN-978-80-968627-3-3, pp. 91-96. 8. Sigurd Skogestad, Ramprasad Yelchuru and Johannes Jäschke ``Optimal use of measurements for control, optimization and estimation using the Loss method: Summary of existing results and some new'', In: Selected topics on constrained and nonlinear control. Workbook, Editors: M. Huba, S. Skogestad, M. Fikar, M. Hovd, T.A. Johansen and B.Rohal-Ilkiv. Published by STU Bratislava and NTNU Trondheim, Jan. 2011. ISBN-978-80-968627-3-3, pp. 53-86. 9. Sigurd Skogestad and Chriss Grimholt ''The SIMC Method for Smooth PID Controller Tuning'', Chapter 5 in: R. Vilanova, A. Visioli (eds.), PID Control in the Third Millennium, Advances in Industrial Control, DOI 10.1007/978-1-4471-2425-2-5, Springer-Verlag, London, 2012. 10. Sigurd Skogestad ''Economic Plantwide Control'', Chapter 11 in: Plantwide control. recent Developments and Applications, G.P. Rangaiah and V. kariwala (Editors). Wiley, Chichester, 2012. ISBN 978-0-470-98014-9. pp. 229-251. 11. Sigurd Skogestad ''Plantwide Control'', Chapter 5.3.1 in: Process Systems Engineering,   Process Dynamics, Control, Monitoring, and Identification by K.V. Gernaey, J. Glassey, S Skogestad, S. Kramer, A. Weiss, S. Engell, E.N. Pistikopoulos, and D.B. Cameron. Part of Ullmann's Encyclopedia of Industrial Chemistry. Online ISBN: 9783527306732. c Wiley, Weinheim, 2012. pp. 10-14.  **Journal papers**   1. A. Linhart and S. Skogestad, ``Computational performance of aggregated distillation models'', Computers and Chemical Engineering, 31 (1), 296-308 (2009). 2. F. Zenith and S. Skogestad, ``Control of the mass and energy dynamics of polybenzimidazole-membrane fuel cells'', J. Process Control, 19 (3), 415-432 (2009). 3. S. Gruetzmann, G. Fieg and S. Skogestad, ``Experimental and Theoretical Studies on the Start-Up Operation of a Multivessel Batch Distillation Column'', Ind.Eng.Chem.Res, 48 (11), 5336-5343 (2009). 4. J.B. Jensen and S. Skogestad, ``Steady-State Operational Degrees of Freedom with Application to Refrigeration Cycles'', Ind.Eng.Chem.Res, 48 (14), 6652-6659 (2009). 5. E.M.B. Aske and S. Skogestad, ``Consistent inventory control'', Ind.Eng.Chem.Res, 48 (44), 10892-10902 (2009). 6. S. Skogestad, ``Feedback: Still the Simplest and Best Solution'', Modeling, Identification and Control, 30 (3), 149-155 (2009). DOI: 10.4173/mic.2009.3.5 7. H. Sivertsen, V. Alstad and S. Skogestad, ``Medium-scale experiments on stabilizing riser-slug flow'', Society of Petroleum Engineers (SPE) Journal on Projects, Facilities & Construction, 4 (4), 156-170 (Dec. 2009). 8. L. Dobos, J. Jäschke, J. Abonyi, S. Skogestad, ``Dynamic model and control of heat exchanger networks for district heating'', Hungarian Journal of Industrial Chemistry Veszprem, 37 (1), 37-49 (2009). 9. H. Sivertsen, E. Storkaas and S. Skogestad, ``Small-scale experiments on stabilizing riser slug flow'', Chemical Engineering Research and Design (Trans IChemE, Part A), 88 (A3), 213-228 (2010). 10. H. Manum and S. Skogestad, ``Bilevel programming for analysis of reduced models for use in model predictive control'', Journal of Cybernetics and Informatics, 9, 3-12 (2010). 11. M. Shamsuzzoha and S. Skogestad, ``The setpoint overshoot method: A simple and fast method for closed-loop PID tuning'', Journal of Process Control, 20, 1220-1234 (2010). 12. A. Linhart and S. Skogestad, ``Reduced distillation models via stage aggregation'', Chemical Engineering Science, 65, 3439-3456 (2010). 13. S. Alcantara, W.D. Zhang, C. Pedret, R. Vilanova, S. Skogestad, ``IMC-like Analytical H-infinity design with S/SP mixed sensitivity consideration: Utility in PID tuning guidance'', Journal of Process Control, 21 (4), 554-563 (2011). Corrected version reprinted in: 21 (6), 976-985 (2011). 14. J.J. Downs and S. Skogestad, ``An industrial and academic perspective on plantwide control'', Annual Reviews in Control, 35, 99-110 (2011). 15. M. Ghadrdan, I.J. Halvorsen and S. Skogestad, ``Optimal operation of Kaibel distillation columns'', Chemical Engineering Research and Design, 89, 1382-1391 (2011). 16. Dejanovic, Lj. Matijasevic, I.J. Halvorsen, S. Skogestad, H. Jansen, B. Kaibel and Z. Olujic, ``Designing four-product dividing wall columns for separation of a multicomponent aromatics mixture'', Chemical Engineering Research and Design, 89, 1155-1167 (2011). 17. M. Panahi and S. Skogestad, ``Economically efficient operation of CO2 capturing process, Part I: Self-optimizing procedure for selecting the best controlled variables'', Chemical Engineering and Processing, 50, 247-253 (2011). 18. R. Jagtap, N. Kaistha and S. Skogestad, ``Plantwide Control for Economic Operation of a Recycle Process with Side Reaction'', Ind. Eng. Chem. Res. 50 (14), 8571-8584 (2011). 19. S. Alcantara, C. Pedret, R. Vilanova, S. Skogestad, ``Generalized internal model control for balancing input/output disturbance response'', Ind.Eng.Chem.Res, 50, 11170-11180 (2011). 20. J. Jäschke and S. Skogestad, ``NCO tracking and self-optimizing control in the context of real-time optimization'', Journal of Process Control, 21 (10), 1407-1416 (2011). 21. Dones, I., Skogestad, S., Preisig, H.A., ``Application of balanced truncation to nonlinear systems'', Industrial and Engineering Chemistry Research, 50 (17), 10093-10101 (2011). 22. Magnus G. Jacobsen and Sigurd Skogestad, ``Active Constraint Regions for Optimal Operation of Chemical Processes'', Industrial and Engineering Chemistry Research, 50 (19), 11226-11236 (2011). 23. Halvorsen, I.J., Skogestad, S., ``Energy efficient distillation'', Journal of Natural Gas Science and Engineering, 3 (4), 571-580 (2011). 24. Petlyuk, F., Danilov, R., Skouras, S., Skogestad, S., ``Identification and analysis of possible splits for azeotropic mixtures-1. Method for column sections'', Chemical Engineering Science, 66 (12), 2512-2522 (2011) 25. Petlyuk, F., Danilov, R., Skouras, S., Skogestad, S., ``Identification and analysis of possible splits for azeotropic mixtures. 2. Method for simple columns-1. Method for column sections'', Chemical Engineering Science, 69 (1), 159-169 (2012) 26. J. Jäschke and S. Skogestad, ``Optimal controlled variables for polynomial systems'', Journal of Process Control, 22 (1), 167-179 (2012). 27. A. Linhart and S. Skogestad, ``An aggregation model reduction method for one-dimensional distributed systems'', AIChE Journal, 58 (5), 1524-1537 (2012) . DOI: 10.1002/aic.12688 28. M. Panahi, A. Rafiee, S. Skogestad and M. Hillestad, ``A natural gas to liquid process model for optimal operation'', Industrial and Engineering Chemistry Research, 51, 425-433 (2012) 29. M. Panahi and S. Skogestad, ``Economically efficient operation of CO2 capturing process, Part II: Control layer'', Chemical Engineering and Processing, 52, 112-124 (2012) 30. M. Panahi and S. Skogestad, ``Selection of Controlled Variables for a Natural Gas to liquids (GTL) Process'', Industrial and Engineering Chemistry Research, 51, 10179-10190 (2012) 31. H. Manum and S. Skogestad, ``Self-optimizing control with active set changes'', Journal of Process Control, 22 873-883 (2012). 32. R. Yelchuru and S. Skogestad, ``Convex formulations for optimal selection of controlled variables and measurements using Mixed Integer Quadratic Programming'', Journal of Process Control, 22 995-1007 (2012). 33. Magnus G. Jacobsen and Sigurd Skogestad, ``Active Constraint Regions for Optimal Operation of Distillation Columns'', Industrial and Engineering Chemistry Research, 51 2963-2973 (2012). 34. D. Dwivedi, JP Strandberg, IJ Halvorsen, HA Preisig and S Skogestad, ``Active Vapor Split Control for Dividing-Wall Columns'', Industrial and Engineering Chemistry Research, 51 15176-15183 (2012). 35. D. Dwivedi, J Strandberg, IJ Halvorsen and S Skogestad, ``Steady state and dynamic operation of four-product dividing-wall (Kaibel) columns: Experimental Verification Industrial and Engineering Chemistry Research, 51 (48), 15696-15709 (2012). 36. D. Dwivedi, IJ Halvorsen and S Skogestad, ``Control structure selection for three-product Petlyuk (dividing-wall) column'', Chemical Engineering and Processing: Process Intensification, 64, 57-67 (2013). 37. D. Dwivedi, IJ Halvorsen and S Skogestad, ``Control structure selection for four-product Petlyuk column'', Chemical Engineering and Processing: Process Intensification, 67, 49-59 (2013). 38. R. Yelchuru and S. Skogestad, ``Quantitative methods for regulatory layer selection'', Journal of Process Control, 23 58-69 (2013). 39. Magnus G. Jacobsen, Sigurd Skogestad ``Active constraint regions for a natural gas liquefaction process'', Journal of Natural Gas Science and Engineering, 10, 8-13 (2013). 40. V Gera, M Panahi, S Skogestad, N Kaistha ``Economic Plantwide Control of the Cumene Process'', Industrial and Engineering Chemistry Research, 52 (2), 830-846 (2013). 41. Rahul Jagtap, Nitin Kaistha, Sigurd Skogestad ``Economic Plantwide Control Over a Wide Throughput Range: A Systematic Design Procedure'', AIChE J., 59 (7), 2407-2426 (2013). 42. Maryam Ghadrdan, Ivar J. Halvorsen, Sigurd Skogestad ``Manipulation of Vapour Split in Kaibel Distillation Arrangements'', Chemical Engineering and Processing: Process Intensification, 72, 10-23 (2013). 43. I.J. Halvorsen, I. Dejanovic, S. Skogestad, Z. Olujic ``Internal configurations for a multi-product dividing wall column'', Chemical Engineering Research and Design, 91 (10), 1954-1965 (2013). 44. Antonio CB de Araujo, Simone Gallani, Michela Mulas, Sigurd Skogestad ``Sensitivity analysis of Optimal Operation of an Activated Sludge Process Model for Economic Controlled Variable Selection'', Industrial & Engineering Chemistry Research, 52 (29), 9908-9921 (2013) 45. Ghadrdan, Maryam; Grimholt, Chriss; Skogestad, Sigurd ``A New Class of Model-Based Static Estimators'', Industrial & Engineering Chemistry Research, 52 (35), 12451-12462 (2013) 46. Julio Cesar Sampaio Dutra, Thiago de Sá Feital, Sigurd Skogestad, Enrique Luis Lima, José Carlos Pinto ``Control of Bulk Propylene Polymerizations Operated with Multiple Catalysts through Controller Reconfiguration'', Macromolecular Reaction Engineering, Article first published online : 14 OCT 2013, DOI: 10.1002/mren.201300139   **Papers in conference proceedings**   1. S. Skogestad, "Feedback: Still the simplest and best solution," (Plenary lecture). 4th IEEE Conference on Industrial Electronics and Applications (ICIEA), 25-27 May 2009, Xi'an, China 2. J. Jäschke, H. Smedsrud, S. Skogestad, H. Manum. "Optimal Operation of a Waste Incineration Plant for District Heating" Proc. American Control Conference, St. Louis, USA, June 2009, pp. 665-670. ISBN: 978-1-4244-4524-0 3. H. Manum, S. Skogestad, J. Jäschke, "Convex initialization of the H2-optimal static output feedback problem" Proc. American Control Conference, St. Louis, USA, June 2009, pp. 1724-1729. ISBN: 978-1-4244-4524-0 4. J.J. Downs, S. Skogestad, "An industrial and academic perspective on plantwide control", Proc. IFAC Symposium on Advanced Control of Chemical Processes (Adchem 2009), pp. 119-130, Koc University, Istanbul, Turkey, 12-15 July 2009. 5. E.M.B. Aske, S. Strand, S. Skogestad, "Industrial Implementation of a Coordinator MPC for Maximizing Throughput at a Large-Scale Gas Plant", Proc. IFAC Symposium on Advanced Control of Chemical Processes (Adchem 2009), pp. 132-137. Koc University, Istanbul, Turkey, 12-15 July 2009. 6. J.Jäschke, S. Skogestad, "Optimally Invariant Variable Combinations for Nonlinear Systems", Proc. IFAC Symposium on Advanced Control of Chemical Processes (Adchem 2009), pp. 551-556, Koc University, Istanbul, Turkey, 12-15 July 2009. 7. E.M.B. Aske, S. Strand, S. Skogestad, "Dynamic degrees of freedom for tighter bottleneck control", Proc. 10th International Symposium on Process Systems Engineering (PSE2009), Salvador, Brazil, 16-20 Aug. 2009, In: Book series Computer Aided Chemical Engineering, Vol. 27, Elsevier, 2009, pp. 1275-1280. ISBN-13: 978-0-444-53472-9 8. H. Manum, C.N. Jones, J. Löfberg, M. Morari, S. Skogestad. "Bilevel programming for analysis of low-complexity control of linear systems with constraints." Proc. Conference on Decision and Control (CDC), Shanghai, China, December 2009, pp. 946-951. ISBN: 978-1-4244-3872-3/09 9. Mehdi Panahi and S. Skogestad, "Self-optimizing control of a GTL process", 1st Trondheim Gas Technology Conference, 21-22 Oct. 2009. 10. Magnus Glosli Jacobsen and S. Skogestad, "Choosing optimal controlled variables for the C3-MR process for liquification of natural gas", 1st Trondheim Gas Technology Conference, 21-22 Oct. 2009. 11. Maryam Ghadrdan, S. Skogestad and I.J. Halvorsen, "Selection of controlled variables for self-optimizing control of thermally coupled distillation columns", 1st Trondheim Gas Technology Conference, 21-22 Oct. 2009. 12. H. Dahl-Olsen and S. Skogestad, "Near-optimal control of batch processes - by tracking of approximated sufficient conditions of optimality." Oral Presentation, AIChE Annual Meeting, Nashville, USA, Nov. 2009. 13. Ramprasad Yelchuru, Sigurd Skogestad, Henrik Manum , MIQP formulation for Controlled Variable Selection in Self Optimizing Control 9th IFAC Symposium on Dynamics and Control of Process Systems (DYCOPS-9 Leuven, Belgium, 5-7 July 2010, pp. 61-66 (2010). 14. Mohammad Shamsuzzohaa ,Sigurd Skogestad, Ivar J. Halvorsen On-Line PI Controller Tuning Using Closed-Loop Setpoint Response 9th IFAC Symposium on Dynamics and Control of Process Systems (DYCOPS-9 Leuven, Belgium, 5-7 July 2010, pp. 497-502 (2010). 15. Martin Kvernland, Ivar Halvorsen, Sigurd Skogestad, Model Predictive Control of a Kaibel Distillation Column 9th IFAC Symposium on Dynamics and Control of Process Systems (DYCOPS-9 Leuven, Belgium, 5-7 July 2010, pp. 539-544 (2010). 16. Morten Bakke, Tor A. Johansen, Sigurd Skogestad, Effect of Varying Controller Parameters in Closed-Loop Subspace Identification 9th IFAC Symposium on Dynamics and Control of Process Systems (DYCOPS-9 Leuven, Belgium, 5-7 July 2010, pp. 581-586 (2010). 17. Johannes Jäschke, Sigurd Skogestad, Self-optimizing Control and NCO tracking in the Context of Real-Time Optimization 9th IFAC Symposium on Dynamics and Control of Process Systems (DYCOPS-9 Leuven, Belgium, 5-7 July 2010, pp. 594-599 (Keynote paper) (2010). 18. Michela Mulas, Antonio Carlos Brandao de Ara`ujo, Roberto Baratti, Sigurd Skogestad Optimized Control Structure for a Wastewater Treatment Benchmark 9th IFAC Symposium on Dynamics and Control of Process Systems (DYCOPS-9 Leuven, Belgium, 5-7 July 2010, pp. 647-652 (2010). 19. Ramprasad Yelchuru, Sigurd Skogestad, MIQP formulation for Optimal Controlled Variable Selection in Self Optimizing Control, Proceedings PSE ASIA, Singapore, 25-28 July 2010. ISBN: 978-981-08-6395-1 [USB Thumb-Drive]. 20. Igor Dejanovic, Ljubica Matijasevic, Zarko Olujic, Ivar Halvorsen, Sigurd Skogestad, Helmut Jansen and Björn Kaibel CONCEPTUAL DESIGN AND COMPARISON OF FOUR-PRODUCTS DIVIDING WALL COLUMNS FOR SEPARATION OF A MULTICOMPONENT AROMATICS MIXTURE, Proceedings Symposium Distillation and Absorption 2010, Eindhoven, The Netherlands, 12-15 September 2010, pp. 85-90 ISBN 978-90-386-2215-6. 21. Ivar J. Halvorsen, Igor Dejanovic, Ljubica Matijasevic, Zarko Olujic and Sigurd Skogestad, ESTABLISHING INTERNAL CONFIGURATION OF DIVIDING WALL COLUMN FOR SEPARATION OF A MULTICOMPONENT AROMATICS MIXTURE, Proceedings Symposium Distillation and Absorption 2010, Eindhoven, The Netherlands, 12-15 September 2010, pp. 91-96, ISBN 978-90-386-2215-6. 22. Jens Strandberg Sigurd Skogestad and Ivar J. Halvorsen, PRACTICAL CONTROL OF DIVIDING-WALL COLUMNS, Proceedings Symposium Distillation and Absorption 2010, Eindhoven, The Netherlands, 12-15 September 2010, pp. 527-532, ISBN 978-90-386-2215-6. 23. Maryam Ghadrdan, Ivar Halvorsen and Sigurd Skogestad, OPTIMAL OPERATION OF THERMALLY-COUPLED KAIBEL DISTILLATION COLUMNS, Proceedings Symposium Distillation and Absorption 2010, Eindhoven, The Netherlands, 12-15 September 2010, pp. 563-568, ISBN 978-90-386-2215-6. 24. Rahul Jagtap, Nitin Kaistha and Sigurd Skogestad, "Plantwide Control for Economic Operation of a Recycle Process", Proc. 20th European Symposium of Computer Aided Process Systems Engineering (ESCAPE20), Ischia, Italy, 06-09 June 2010, In: Book series Computer Aided Chemical Engineering, Vol. 28, Elsevier, 2010, pp. 499-504, ISBN 13: 978-0-444-53569-6 25. Mohammad Shamsuzzoha, Sigurd Skogestad, Ivar J. Halvorsen, "A simple approach for on-line PI controller tuning using closed-loop setpoint responses", Proc. 20th European Symposium of Computer Aided Process Systems Engineering (ESCAPE20), Ischia, Italy, 06-09 June 2010, In: Book series Computer Aided Chemical Engineering, Vol. 28, Elsevier, 2010, pp. 619-624, ISBN 13: 978-0-444-53569-6 26. Sigurd Skogestad, "A Systematic Approach to Plantwide Control", Symposium on Recent and Emerging Advances in Chemical Engineering (REACH), Indian Institute of Technology Madras, Chennai, India. December 2-4, 2010. pp. 132-139 (2010). 27. Henrik Manum and Sigurd Skogestad, "BILEVEL PROGRAMMING FOR ANALYSIS OF REDUCED MODELS FOR USE IN MODEL PREDICTIVE CONTROL", International Conference Cybernetics and Informatics, Vysna Boca, Slovak replublic, February 10-13, 2010 (10 pages). 28. Sigurd Skogestad, "FEEDBACK: STILL THE SIMPLEST AND BEST SOLUTION", International Conference Cybernetics and Informatics, Vysna Boca, Slovak replublic, February 10-13, 2010 (10 pages). 29. Yelchuru, R., Skogestad, S., ``Optimal controlled variable selection for individual process units in self optimizing control with MIQP formulations'', Proc. American Control Conference (ACC), pp. 342-347, San Francisco, June 2011, ISSN 0743-1619. 30. Alcántara, S., Skogestad, S., Grimholt, C., Pedret, C., Vilanova, R. ``Tuning PI controllers based on H-infinity Weighted Sensitivity'', 19th Mediterranean Conference on Control and Automation (MED 2011), art. no. 5983053, pp. 1301-1306, Corfu, Greece, June 2011 31. Ghadrdan, M., Halvorsen, I.J., Skogestad, S., ``A Shortcut Design for Kaibel Columns Based on Minimum Energy Diagrams'', Proc. 21th European Symposium of Computer Aided Process Systems Engineering (ESCAPE21), Greece, June 2011, In: Book series Computer Aided Chemical Engineering, Vol. 29 (8), Elsevier, 2011, pp. 356-360, 32. Gera, V., Kaistha, N., Panahi, M., Skogestad, S., ``Plantwide Control of a Cumene Manufacture Process'', Proc. 21th European Symposium of Computer Aided Process Systems Engineering (ESCAPE21), Greece, June 2011, In: Book series Computer Aided Chemical Engineering, Vol. 29 (8), Elsevier, 2011, pp. 522-526, 33. Jäschke, J., Skogestad, S., ``Controlled Variables from Optimal Operation Data'', Proc. 21th European Symposium of Computer Aided Process Systems Engineering (ESCAPE21), Greece, June 2011, In: Book series Computer Aided Chemical Engineering, Vol. 29 (8), Elsevier, 2011, pp. 753-757, 34. Jacobsen, M.G., Skogestad, S., ``Optimization of LNG plants - challenges and strategies'', Proc. 21th European Symposium of Computer Aided Process Systems Engineering (ESCAPE21), Greece, June 2011, In: Book series Computer Aided Chemical Engineering, Vol. 29 (8), Elsevier, 2011, pp. 1854-1858, 35. Dejanovic, Lj. Matijasevic, I. Halvorsen, S. Skogestad, B. Kaibel, H. Jansen, Z. Olujic, ``Designing packed multi-partition wall dividing wall columns'', 2011 AIChE Spring National Meeting, Chicago, March 2011. 36. Deeptanshu Dwivedi, Ivar J. Halvorsen, Sigurd Skogestad, ``Control Structure Design for Optimal Operation of 4-Product Thermally Coupled Columns'', 2011 AIChE Spring National Meeting, Chicago, March 2011. 37. Maryam Ghadrdan, Ivar J. Halvorsen and Sigurd Skogestad, ``Composition Estimation in Dividing-Wall Columns Using Temperature Measurements'', 2011 AIChE Spring National Meeting, Chicago, March 2011. 38. Ivar J. Halvorsen, Sigurd Skogestad, Igor Dejanovic, Ljubica Matijasevic, Zarko Olujic ``Multi-product dividing wall columns: A simple and effective assessment and conceptual design'', 14th International Conference on Intl. Symposium on Process Integration, Modelling and Optimisation for Energy Saving and Pollution Reduction /PRES'11), May 2011, Florence, Italy. In: CHEMICAL ENGINEERING TRANSACTIONS, Volume 25, 2011, pp. 611-616. ISBN 978-88-95608-16-7. 39. Esmaeil Jahanshahi and Sigurd Skogestad ``Simplified Dynamical Models for Control of Severe Slugging in Multiphase Risers'', 18th IFAC World Congress, Milan, 28 Aug-02 Sep 2011, pp. 1634-1639. IFAC-PapersOnLine, ISSN 1474-6670. 40. Ramprasad Yelchuru and Sigurd Skogestad ``Optimal Controlled Variable Selection with Structural Constraints Using MIQP Formulations'', 18th IFAC World Congress, Milan, 28 Aug-02 Sep 2011, pp. 4977-4982. IFAC-PapersOnLine, ISSN 1474-6670. 41. J. Jäschke and S. Skogestad ``Optimal operation by controlling the gradient to zero'', 18th IFAC World Congress, Milan, 28 Aug-02 Sep 2011, pp. 6073-6078. IFAC-PapersOnLine, ISSN 1474-6670. 42. J. Jäschke, M. Fikar and S. Skogestad ``Self-optimizing Invariants in Dynamic Optimization'', 2011 50th IEEE Conference on Decision and Control and European Control Conference (CDC-ECC), Orlando, FL, USA, December 12-15, 2011, pp. 7753-7758. Paper: 978-1-61284-799-3/11. ISSN 0191-2216 43. D, Dwivedi, I.J. Halvorsen, S. Skogestad, ``Energy efficient technologies Control structure design for four product Petlyuk column'', 8th European Conference of Chemical Engineering (ECCE 2011), Berlin, 25-29 Sept. 2011. 44. M. Ghadrdan, I.J. Halvorsen, S. Skogestad, ``Manipulation of vapour split in thermally-coupled distillation arrangements: is it necessary?'', 8th European Conference of Chemical Engineering (ECCE 2011), Berlin, 25-29 Sept. 2011. 45. M.G. Jacobsen, S. Skogestad, ``Plantwide control - identifying and switching between active constraint regions'', 8th European Conference of Chemical Engineering (ECCE 2011), Berlin, 25-29 Sept. 2011. 46. M. Panahi and S. Skogestad, Optimal Operation of a CO2 Capturing Plant for a Wide Range of Disturbances 2011 AIChE National Meeting, Minneapolis, October 2011. Presentation 316b 47. M. Panahi and S. Skogestad, Controlled Variables Selection for a Gas-to-Liquids Process 2011 AIChE National Meeting, Minneapolis, October 2011. Presentation 468d 48. S. Skogestad, MIMO Controllability and Decentralized and Plantwide Control 2011 AIChE National Meeting, Minneapolis, October 2011. Presentation 161b 49. M.G. Jacobsen and S. Skogestad, Active Constraint Regions for Economically Optimal Operation of Distillation Columns. 2011 AIChE National Meeting, Minneapolis, October 2011. Presentation 215f 50. I.J. Halvorsen, S. Skogestad, I. Dejanovic, Z. Olujic. Optimal Design of Energy-Efficient Integrated Distillation Processes for Multicomponent Ideal and Non-Ideal Mixtures by Use of the Vmin-Diagram 2011 AIChE National Meeting, Minneapolis, October 2011. Presentation 423c 51. D. Dwivedi, I.J. Halvorsen and S. Skogestad. Active Vapor Split Control for Fully Coupled Columns: Experimental Studies 2011 AIChE National Meeting, Minneapolis, October 2011. Presentation 492a 52. R. Yelchuru, S. Skogestad and D. Dwivedi. Optimal Measurement Selection for Controlled Variables for Kaibel Distillation Column 2011 AIChE National Meeting, Minneapolis, October 2011. Presentation 652e 53. M. Ghadrdan, C. Grimholt, S. Skogestad, I.J. Halvorsen. Loss Method: A Static Estimator Applied for Product Composition Estimation From Distillation Column Temperature Profile 2011 AIChE National Meeting, Minneapolis, October 2011. Presentation 669f 54. C. Grimholt and S. Skogestad ``Optimal PI-Control and Verification of the SIMC Tuning Rule'', IFAC Conference on Advances in PID Control (PID'12), Brescia, Italy, 28-30 March 2012. IFAC-PapersOnLine, ISSN 1474-6670. 55. S. Alcántara, R. Vilanova, C. Pedret, S. Skogestad ``A look into robustness/performance and servo/regulation issues in PI tuning'', IFAC Conference on Advances in PID Control (PID'12), Brescia, Italy, 28-30 March 2012. IFAC-PapersOnLine, ISSN 1474-6670. 56. E Jahanshahi, S Skogestad, AH Helgesen ``Controllability analysis of severe slugging in well-pipeline-riser systems'', Proceedings of the 2012 IFAC Workshop on Automatic Control in Offshore Oil and Gas Production, Norwegian University of Science and Technology, Trondheim, Norway, May 31 - June 1, 2012, pp. 101-108 57. J Jäschke, S Skogestad ``A Batch Reactor Heat Recovery Challenge Problem'', Nordic Optimization Symposium, Trondheim, June 2012 58. J Jäschke, S Skogestad ``Optimization by Controlling Self-Optimizing Measurements'', Nordic Optimization Symposium, Trondheim, June 2012 59. D Dwivedi, IJ Halvorsen, S Skogestad ``Dynamic behaviour and control of extended Petlyuk distillation arrangements'', In: Ian David Lockhart Bogle and Michael Fairweather (Editors), Proceedings of the 22nd European Symposium on Computer Aided Process Engineering, 17 - 20 June 2012, London. In: Book series Computer Aided Chemical Engineering, Vol. 30 (B), Elsevier, 2012, ISBN 978-0-444-59431-0, pp. 777-781, 60. E Jahanshahi, S Skogestad, H Hansen, ``Control Structure Design for Stabilizing Unstable Gas-Lift Oil Wells'' Preprints of the 8th IFAC Symposium on Advanced Control of Chemical Processes (Adchem), Furama Riverfront Hotel, Singapore, July 10-13, 2012. International Federation of Automatic Control. IFAC-PapersOnLine, ISSN 1474-6670. pp. 93-100. 61. M. 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J Jäschke, S Skogestad ``Control structure selection for optimal operation of a heat exchanger network'', UKACC International Conference on Control 2012. Cardiff, UK, 3-5 September 2012. Paper: 978-1-4673-1558-6/1. 148-153 67. Araujo, S Gallani, M Mulas, S Skogestad, ``Sensitivity of optimal operation of an activated sludge process model'', UKACC International Conference on Control 2012. Cardiff, UK, 3-5 September 2012. Paper: 978-1-4673-1558-6/12. 259-264. 68. J.C.S. DUTRA, S. SKOGESTAD, J.C.S. PINTO, E.L. LIMA, CONTROLE OTIMIZANTE DE UMA COLUNA DE DESTILAÇÃO BINÁRIA SELF OPTIMIZING CONTROL DESING FOR A BINARY DISTILLATION COLUMN (in Portugese), Paper (12 pages) presented at COBEQ 2012, 19th Brazilian Congress in Chemical Engineering, Buzios, RJ, Brazil, 9-12 September 2012. 69. Ambari Khanam, M. Shamsuzzoha, Sigurd Skogestad. ''Operation of energy efficient divided wall column'', In: Andrzej Kraslawski and Ilkka Turunen (Editors), Proceedings of the 23rd European Symposium on Computer Aided Process Engineering (ESCAPE'23), 09 - 12 June 2013, Lappeenranta, Finland. In: Book series Computer Aided Chemical Engineering, Vol. 32, Elsevier, 2013, ISBN 978-0-444-63234-0, pp. 235-240. 70. E Jahanshahi, S Skogestad, EI Grotli Anti-slug control experiments using nonlinear observers American Control Conference (ACC), Washington DC, June 2013, 1056-1062 (2013). ISBN 978-1-4799-0176-0 71. E Jahanshahi, S Skogestad, M Lieungh Subsea solution for anti-slug control of multiphase risers European Control Conference (ECC), Zurich, July 2013, pp. 4094-4099 (2013). ISBN 978-3-952-41734-8. 72. Nabil Magbool Jan, Sigurd Skogestad, Sridharakumar Narasimhan Optimal selection of sensor network and backed-off operating point based on economics European Control Conference (ECC), Zurich, July 2013, pp. 4472-4477 (2013). ISBN 978-3-952-41734-8 73. Esmaeil Jahanshahi, Sigurd Skogestad, Esten I. Grotli. Nonlinear model-based control of two-phase flow in risers by feedback linearization 9th IFAC Symposium on Nonlinear Control Systems (NOLCOS), Toulouse, France, September 4-6, 2013, pp. 301-306. International Federation of Automatic Control. IFAC-PapersOnLine, ISSN 1474-6670 (2013) 74. Igor Dejanovic, Ivar J. Halvorsen, Sigurd Skogestad, Helmut Jansen, Zarko Olujic ``Cost-effective design of energy efficient four-product dividing wall columns'', , 16th Conference Process Integration, Modelling and Optimisation for Energy Saving and Pollution Reduction (PRES'13), Rhodes, Greece, Sep-Oct. 2013. In: Chemical Engineering Transactions (AIDIC Italy), Guest Editors: Petar Varbanov, Jirí Klemes, Panos Seferlis, Athanasios I. Papadopoulos, Spyros Voutetakis. 35, 283-288 (2013) ISBN 978-88-95608-26-6; ISSN 1974-979 75. Jahanshahi, Esmaeil; Skogestad, Sigurd, Comparison between Nonlinear Model-Based Controllers and Gain-Scheduling Internal Model Control Based on Identified Model, 52nd IEEE Conference on Decision and Control (CDC). 10-13 Dec. 2013. Florence, Italy, pp. 853-860. ISBN 978-1-4673-5716-6/13. ISSN 0191-2216 76. Minasidis, Vladimiros; Jäschke, Johannes; Skogestad, Sigurd, Economic Plantwide Control: Automated Controlled Variable Selection for a Reactor-Separator-Recycle Process, Preprints of the 10th IFAC International Symposium on Dynamics and Control of Process Systems (DYCOPS), Mumbai, India, Dec. 2013, pp. 87-92. International Federation of Automatic Control. IFAC-PapersOnLine, ISSN 1474-6670 (2013) 77. Jahanshahi, Esmaeil; Skogestad, Sigurd , Closed-Loop Model Identification and PID/PI Tuning for Robust Anti-Slug Control, Preprints of the 10th IFAC International Symposium on Dynamics and Control of Process Systems (DYCOPS), Mumbai, India, Dec. 2013, pp. 233-240. 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Jäschke, Johannes; Skogestad, Sigurd, Using Process Data for Finding Self-Optimizing Controlled Variables, Preprints of the 10th IFAC International Symposium on Dynamics and Control of Process Systems (DYCOPS), Mumbai, India, Dec. 2013, pp. 451-456. International Federation of Automatic Control. IFAC-PapersOnLine, ISSN 1474-6670 (2013) 81. de Oliveira, Vinicius; Jäschke, Johannes; Skogestad, Sigurd, Dynamic Online Optimization of a House Heating System in a Fluctuating Energy Price Scenario, Preprints of the 10th IFAC International Symposium on Dynamics and Control of Process Systems (DYCOPS), Mumbai, India, Dec. 2013, pp. 463-468. International Federation of Automatic Control. IFAC-PapersOnLine, ISSN 1474-6670 (2013) |
| 1. Best career publications (up to three) |
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| 1. Presentations |
| **Plenary/keynote lectures**   1. ``Analysis and Control of Distillation Columns'', CHISA '87, Praha, Sept 1987. 2. ``Towards integrating design and control: Use of frequency-dependent tools for controllability analysis'', Process Systems Engineering (PSE) '91 Canada, Aug. 1991. 3. ``Controllability assessment as a tool for control structure selection'', Invited lecture at IMA Workshop on Control system design for advanced engineering systems: Complexity, uncertainty, information and organization, Institute for Mathematics and Its Applications, Minneapolis, 13 Oct. 1992 4. ``Dynamics and Control of Distillation Columns - A Critical Survey'', IFAC-symposium DYCORD+'92, Maryland, Apr. 1992 5. ``Robust multivariable control using $H\_{\infty}$ methods - Analysis, design and Industrial Applications'', Invited short course at 1993 European Control Conference (with I. Postlethwaite), July 1993. 6. ``Interactions between process design and control'', CHISA'93, Praha, Aug.-Sept., 1993. 7. ``Input-Output Controllability Analysis'', Reglermöte, Västerås, Sweden, Oct. 1994. 8. ``Dynamics and control of distillation columns - A tutorial introduction'', Symposium Distillation and Absorbtion 97, Maastricht, Netherlands, Sept. 1997. 9. S. Skogestad, ``Plantwide control'' Invited talk at Tutzing Symposium, Germany, 11 March 1998 10. S. Skogestad, ``Control structure design and plantwide control - The search for the self-optimizing control structure'' , Invited talk at 1998 Process Systems Engineering Seminar Series, Imperial College, London, 22 May 1998 11. ``Self-optimizing control: the missing link between steady-state optimization and control'', Process Systems Enginneering (PSE) 2000, Keystone, Colorado, July 2000. 12. ``Plantwide control - towards a systematic procedure'', European Symposium on computer-aided process engineering (ESCAPE'12), The Hague, Netherlands, May 2002. 13. ``Feedback control theory: An overview and connections to biochemical systems theory'', 7th Intl. Symp. on Biochemical systems theory. Averoy, Norway, 17-20 June 2002 14. ``Control structure design: What should we control, measure and manipulate?'', First African Control Conference, Cape Town, South Africa, 03-05 December 2003. 15. "Feedback: the simple and best solution", , Invited interactive Web-CAST lecture (American Institute of Chemical Engineers' Division for Computing and Systems Technology), 09 February 2006. 16. ``The dos and don'ts of distillation column control'', Symposium Distillation and Absorbtion 2006, London, UK, Sept. 2006. 17. ``Self-optimizing Control: Simple Implementation of Optimal Operation'', 27th Benelux Meeting on Systems and Control, 18-20 March 2008, Heeze, Netherlands. 18. ``Feedback: Still the best and simplest solution'', 4th IEEE conference of industrial electronics and applications (ICIEA), 25-27 May 2009, Xi'an, China. 19. "A systematic approach to plantwide control". Invited plenary talk at ICCAS, Seoul, 28 Oct 2011. 20. "Economic plantwide control". Invited plenary talk at AMIDIQ, San Jose del Cabo, Mexico, 01 May 2012. |
| 1. Prizes and awards |
| 1. Elected Fellow of International Federation of Automatic Control (IFAC) (2013) 2. Elected Fellow of American Institute of Chemical Engineers (AIChE) (2012). 3. Elected member of Process Automation Hall of Fame, Delaware, USA, 23 May 2011 4. Member of IFAC Technical Board, 2008-2014. 5. Best paper award for paper published in 2004 in Computers and chemical engineering (2006). (For paper: S. Skogestad, ``Control structure design for complete chemical plants'', Computers and Chemical Engineering, 28 (1-2), 219-234 (2004).) 6. Outstanding Service Award of the International Federation of Automatic Control (IFAC World Congress, Prague, 2005). 7. Book "Multivariable Feedback Control" (Wiley, 1996) selected first runner-up for International Federation of Automatic Control award for best texbook of the last 3 years (IFAC World Congress, Beijing, 1999). 8. O. Hugo Schuck Best Paper Award by the American Automatic Control Council, 1992 (for conference paper no. 28). 9. Elected member to Det Kongelige Norske Vitenskapers Selskab, 1991. 10. George S. Axelby Outstanding Paper Award by the Control System Society of IEEE (The Institute of Electrical and Electronic Engineers), 1990 (for journal paper no. 14). 11. Ted Peterson Best Paper Award by the CAST division of AIChE (The American Institute of Chemical Engineers), 1989. 12. Elected member to The Norwegian Academy of Technical Sciences (NTVA), 1988. 13. Utdanningsstipend awarded from Univ. of Trondheim for graduate studies at Caltech, Sept. 1983 - Feb. 1987. 14. Fullbright Fellowship (travel grant) awarded for graduate studies at Caltech, 1983 15. Innstilling awarded for the Siv.ing. degree (that is, the result was communicated to the Norwegian King), 1979. |
| 1. Patents |
| J. Johannes, S. Skogestad, Norwegian University of Science and Technology (NTNU), Parallel heat exchanger control, WO2013EP59304 20130503 (2013), Priority number: GB20120007770 20120503 (2012) |
| Please do not include works that have not yet been submitted for publication in your list of publications. If you include works that are not in English, please cite the title in the original language as well as in English. |

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| **VI. Additional qualifications** |
| For example, teaching experience, knowledge of other languages (if yes, please state the level of written and oral skills), professional work, etc. |
| From 1998 to 2003 I taught the course TKP4120 Prosessteknikk for students in the 2nd year of Chemical Engineering and 3rd year of petroleum engineering.  Undergraduate course: Process Control (approx. 50 students each year).  Until 1999: Graduate course (at Division of Electrical Engineering): 43917 Multivariable Frequency Analysis (approx. 10 students each year). The course is now replaced by a 4th year course on Robust control by Professor Morten Hovd.  I teach a ``crash course'' in process control (about 6 lectures) as part of the course Separasjonsteknikk. In addition, I used to give a ``crash course'' on dynamic modelling and simulation (about 3 lectures) as part of the course Prosessutforming. I also coteach two modules for the 5th year specialization: Advanced process control and Special topics (distillation) .  Since 2009 I have been teaching the distillation, absorption and extraction part of the course TKP4105 Separation Technology for the 3rd year Chemical Engineering students.  Advisor for about 110 Diploma (Master) students  Advisor for about 30 graduated Ph.D. students |

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| **VII. Granted projects/third party projects and important research collaboration** |

Professor Skogestad has been the main investigator and co-investigator in numerous research project from The Norwegian research Council and in many European projects. With this funding he has employed 36 PhD students (graduated) in addition to many postdocs and other researchers.

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