Boris Houska

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Experience

Assistant Professor, School of Information Science and Technology, ShanghaiTech, 2014–present
Visiting Scholar, EECS, University of California, Berkeley, Winter 2016
Visiting Professor, Institute for Microsystems Engineering, University of Freiburg, Summer 2014
Visiting Professor, Freiburg Institute for Advanced Studies, University of Freiburg, Summer 2014
Research Faculty, Department of Automation, Shanghai Jiao Tong University, 2013–2014
Postdoctoral Researcher, CPSE, Imperial College London, 2012–2013
Postdoctoral Researcher, Optimization in Engineering Center, KU Leuven, 2011

Education

Ph.D. in Electrical Engineering, KU Leuven, 2011
Diploma in Mathematics, University of Heidelberg, 2007

Research Areas

- Control theory and algorithms, embedded control
- Distributed- and robust optimization, optimal control
- Numerical optimization and control algorithms, cyber-physical systems
- Set-based computing algorithms, applications in robust- and global optimal control
- Optimization and real-time control software

Honors and Awards

- ShanghaiTech Excellent Professor Award, ShanghaiTech University, 2016.
- SIST Excellence in Research Award, ShanghaiTech University, 2016.
- FRIAS Fellowship (for visiting professors), Freiburg Institute for Advanced Studies, University of Freiburg, 2014.
- ICCOPT Best Paper Award for a Young Researcher in Continuous Optimization (Finalist, Top 3) for the paper "Nonlinear Robust Optimization via Sequential Convex Bilevel Programming" by B. Houska and M. Diehl, Mathematical Programming, Series A, 2013.

- Marie-Curie Fellowship for the project "Next Generation Algorithms for Robust and Global Optimization of Dynamic Systems", 2012.

Plenary and Distinguished Lectures

1. Keynote lecture (in the form of a workshop) on "Distributed Optimization and Control with ALADIN", 21st International (IFAC) Conference on Process Control, Štrbské Pleso, Slovakia, June 6–9, 2017. (invited by prof. Miroslav Fikar and prof. Michal Kvasnica)

2. Plenary lecture as a co-author (presented by the first author, Benoît Chachuat) at the 9th International Symposium on Advanced Control of Chemical Processes (ADCHEM), Whistler, British Columbia, Canada, June 2015.

3. Plenary speaker in the best paper award session at the International Conference on Continuous Optimization (ICCOPT), Lisbon, 2013.

4. Plenary lecture (on behalf of prof. Moritz Diehl) at the 2nd International Workshop on Mathematics and Algorithms for Computer-Aided Manufacturing, Engineering and Numerical Control (MAMENC), October 25-26, Beijing, 2012.

Invited Talks and Seminars

1. X. Feng, M.E. Villanueva, B. Houska. Differential games: a reach set approach. INFORMS Annual Meeting, Houston, USA, October 22, 2017.

2. B. Houska. Set Based Computing Methods in Optimization and Control. Automatic Control, Automation and Mechatronics Devision, Chalmers University of Technology, Gothenburg, September 5, 2017. (invited by Dr. Mario Zanon)

3. Y. Zha, B. Houska. Interval Superposition Arithmetic. Bremen Institute of Industrial Technology, University of Bremen, June 20, 2017. (invited by prof. Jürgen Pannek)

4. B. Houska, X. Feng. Self-reflective model predictive control. Slovak University of Technology in Bratislava, Slovakia, June 13, 2017. (invited by prof. Radoslav Paulen)

5. J.C. Li, B. Houska. Robust model predictive control using ellipsoidal robust forward invariant tubes. Bremen Institute of Industrial Technology, University of Bremen, June 13, 2017. (invited by prof. Jürgen Pannek)

6. B. Houska. Set Based Computing Methods in Optimization and Control. Hybrid Systems Group Seminar, EECS, University of California, Berkeley, February 8, 2017. (invited by prof. Claire Tomlin)

7. M.A. Müller, B. Houska. Cost-to-travel functions—a new perspective on economic model predictive control. Joint Annual Meeting of the International Association of Applied Mathematics and Mechanics (GAMM), March 6–10, 2017.

8. Y. Jiang, B. Houska. Distributed Optimization and Control with ALADIN. Institute for Microsystems Engineering, University of Freiburg, Germany, September 2, 2016. (invited by prof. Moritz Diehl)

9. B. Houska, X. Feng. Self-reflective model predictive control. Institute for Microsystems Engineering, University of Freiburg, Germany, September 2, 2016. (invited by prof. Moritz Diehl)

10. Y. Jiang, B. Houska. Distributed Optimization and Control with ALADIN. Institute for Systems Theory and Automatic Control, University of Stuttgart, Germany, August 31, 2016. (invited by Dr. Matthias A. Müller)

11. B. Houska, X. Feng. Self-reflective model predictive control. Institute for Systems Theory and Automatic Control, University of Stuttgart, Germany, August 30, 2016. (invited by Dr. Matthias A. Müller)

12. B. Houska, J.C. Li, B. Chachuat. Robust optimal control using generalized higher order moment expansions. 5th International Conference on Continuous Optimization (ICCOPT), Tokyo, Japan, August 8–11, 2016. (invited by prof. Ishan Yanikoglu)

13. B. Houska. Global optimization in control: potential and open problems. Third Symposium on Future Innovations in Process Systems Engineering (FIPSE'16), Rhodes, Greece, June 20–23, 2016.

14. B. Houska. Nonlinear and robust MPC using min-max differential inequalities. Slovak University of Technology in Bratislava, Slovakia, June 10, 2016. (invited by prof. Michal Kvasnica and Dr. Juraj Oravec)

15. B. Houska. ALADIN—An Augmented Lagrangian Based Algorithm for Distributed Non-Convex Optimization and Control. Slovak University of Technology in Bratislava, Slovakia, June 9, 2016. (invited by prof. Michal Kvasnica and Dr. Juraj Oravec)

16. B. Houska. Nonlinear and robust MPC with applications in robotics. Workshop on Robust Optimization-Based Control and Planning for Legged Robots, IEEE International Conference on Robotics and Automation (ICRA), Stockholm, May 16, 2016. (invited by prof. Russ Tedrake and Dr. Andrea Del Prete)

17. B. Houska. ALADIN—An Augmented Lagrangian Based Algorithm for Distributed Non-Convex Optimization and Control. Workshop on Economic and Distributed Model Predictive Control, Swiss Federal Institute of Technology in Lausanne (EPFL), Switzerland, March 21–23, 2016. (invited by prof. Colin Jones and Dr. Timm Faulwasser)

18. B. Houska. Enforcing Asymptotic Orbital Stability of Economic MPC. 1st Symposium on Robotics and Model Predictive Control: Path Following, BIBA, University of Bremen, Germany, September 13–16, 2015. (invited by prof. Karl Worthmann)

19. B. Houska. Nonlinear MPC in the Mircosecond Range. 1st Symposium on Robotics and Model Predictive Control: Path Following, BIBA, University of Bremen, Germany, September 13–16, 2015. (invited by prof. Jürgen Pannek)

20. B. Houska. Global Optimal Control Algorithms and Their Application to Biochemical Processes Control. Carnegie Mellon University, USA, July 23, 2015. (invited by prof. Lorenz T. Biegler)

21. B. Houska, J. Frasch, M. Diehl. Augmented Lagrangian Based Algorithm for Distributed Optimal Control. *International Symposium on Mathematical Programming* (ISMP), Pittsburgh, USA, July 17, 2015. (invited by prof. Christian Kirches)

22. B. Houska. Enforcing Asymptotic Orbital Stability of Economic Model Predictive Control. Magdeburg Lectures on Optimization and Control, University of Magdeburg, Germany, 2014. (invited by prof. Rolf Findeisen)

23. B. Houska. Set-Valued Integrators and Their Application in Robust Optimal Control. FRIAS Workshop on Robust Optimization and Control, University of Freiburg, Germany, 2014. (invited by prof. Moritz Diehl)

24. B. Houska, B. Chachuat. Global Optimization in Infinite Dimensional Hilbert Spaces. SIAM Conference on Optimization, San Diego, USA, 2014. (invited by prof. Christopher Thomas Ryan)

25. B. Houska. Global Optimal Control Algorithms and Their Application to Biochemical Processes Control. OPTEC mini symposium—Computer-aided process engineering for modeling, control and optimization in the (bio)chemical industry: the quest for efficient, clean and safe solutions, KU Leuven, Belgium, 2014. (invited by prof. Jan Van Impe)

26. J. Rajyaguru, M.E. Villanueva, B. Houska, B. Chachuat. Higher-Order Inclusions of Nonlinear Systems By Chebyshev Models. AIChE Annual Meeting, Atlanta, GA, Nov 16–21, 2014.

27. B. Houska. Numerical Methods for Fast Optimal Control of Mechatronic Systems. ShanghaiTech University, February 19, 2014. (invited by prof. Shuguang Cui)

28. B. Houska, M.E. Villanueva, B. Chachuat. Validated Integration of Nonlinear ODEs Using Taylor Models and Ellipsoidal Calculus. AIChE Annual Meeting, San Francisco, CA, November 3–8, 2013.

29. B. Houska, B. Chachuat. Branch-and-Lift Algorithm for Deterministic Global Optimization in Nonlinear Optimal Control. AIChE Annual Meeting, San Francisco, CA, November 3–8, 2013.

30. B. Houska, B. Chachuat. Branch-and-Lift Algorithm for Deterministic Global Optimization in Nonlinear Optimal Control. 4th International Conference on Continuous Optimization (ICCOPT), Lisbon, Portugal, July 27–August 1, 2013.

31. B. Houska, B. Chachuat. A Direct Method for Deterministic Global Optimization of Nonlinear Optimal Control Problems. INFORMS Annual Meeting, Phoenix, USA, 2012. (invited by Dr. Polyxeni-Margarita Kleniati)

32. B. Houska, M. Villanueva, M. Diehl, and B. Chachuat. Comparison of Bounding Techniques for Nonlinear ODEs. Computational Management Science Conference, London, 2012.

33. B. Houska, M. Diehl, O. Stein, P. Steuermann. Lifting methods for generalized semi-infinite programs. *International Symposium on Mathematical Programming* (ISMP), Berlin, Germany, 2012. (invited by prof. Daniel Kuhn)

34. B. Houska. Robust Optimization of Dynamic Systems. Workshop on Modeling, Simulation, and Optimization of Uncertain Systems, Heidelberg, Germany, 2012. (invited by prof. Christian Kirches)

35. B. Houska Lifting Methods for Generalized Semi-Infinite Programs. QUADS Seminar, Imperial College London, March 22, 2012. (invited by prof. Daniel Kuhn)

36. J. Gillis, J. Geebelen, J. Sternberg-Kaletta, S. Gros, B. Houska, M. Diehl. Lyapunov based design of robust linear-feedback for time-optimal periodic quadcopter motion. *Benelux Meeting on Systems and Control*, Heijderbos, Heijen/Nijmegen, The Netherlands, March 27–29, 2012.

37. F. Logist, D. Telen, M. Vallerio, P. Van Erdeghem, B. Houska, M. Diehl, J. Van Impe. Multi-objective optimal control of dynamic industrial processes. *International Conference on Multiple Criteria Decision Making*, Jyväskylä, Finland, June 13–17, 2011.

38. B. Houska and M. Diehl. Robust Optimization of Nonlinear Constrained Dynamic Systems. *SIAM Conference on Optimization*, Darmstadt, Germany, 2011. (invited by prof. Dick Den Hertog)

39. B. Houska, J. Sternberg, and M. Diehl. Numerical Methods to Compute Periodic and Open-Loop Stable Orbits. *International Airborne Windenergy Conference*, Leuven, Belgium, 2011.

40. B. Houska. Solving Robust Optimal Control Problems with ACADO Toolkit. School of Mathematical Sciences, Shanghai Jiao Tong University, 2009. (invited by prof. Jinyan Fan)

41. M. Diehl and B. Houska. Optimal Control of Large Power Generating Kite Systems. *SIAM Conference on Optimization*, Boston, USA, 2009.

42. B. Houska, H.J. Ferreau, M. Diehl. ACADO—An Open-Source Toolkit for Automatic Control and Dynamic Optimization. *Belgian-French-German Conference on Optimization*, Leuven, Belgium, 2009.

43. B. Houska and M. Diehl. Modeling and Parameter Estimation for Power Generating Kites. *Conference on Modeling, Simulation and Optimization of Complex Processes*, Heidelberg, Germany, 2008.

44. B. Houska and M. Diehl. Robustness and Stability Optimization for Nonlinear Time-Periodic Systems with Inequality State Constraints. *OPTEC Workshop on Distance Measures and Eigenvalue Optimization*, Leuven, Belgium, 2008.

45. B. Houska and M. Diehl. Robust and Nonlinear Model Predictive Control for Power Generating Kites. *Workshop on Robust MPC*, Leuven, Belgium, 2008.

Poster Awards

- CAST Directors' Award for the poster "Higher-Order Inclusions of Nonlinear Systems" by B. Chachuat, J. Rajyaguru, M.E. Villanueva, and B. Houska, 2015.
- Best Poster Award (3^{rd} prize) for the poster "Efficient numerical methods for computation of open-loop stable kite orbits." by J. Sternberg, B. Houska, M. Diehl, Airborne Wind Energy Conference (AWEC), 2011.

Research Projects and Leadership Roles

- Full member of the Scientific Network on "External Regulation of Mobile Robots using Model Predictive Control: Beyond Set Point Stabilization" funded by German Research Foundation (DFG), 2017-2018.
- Bilateral Grant Agreement (Slovakia-China, together with prof. Michal Kvasnica) for the Project "Robust Model Predictive Control meets Robotics", 2015-2017.
- NSFC Grant for the project "Embedded Optimization Algorithms for Economic Model Predictive Control", National Natural Science Foundation China, 2015-2018.
- Associated member of the Scientific Network on "External Regulation of Mobile Robots using Model Predictive Control: Set Point Stabilization, Path Following, and Distributed Control" funded by German Research Foundation (DFG), 2015-2016.
- Marie-Curie project (FP7) "Next Generation Algorithms for Robust and Global Optimization of Dynamic Systems", 2012.
- Various institutional grants (Imperial College London (2013), Shanghai Jiao Tong University (2013-14), ShanghaiTech University (2014-present)).

URL Links

- Latest version of this CV: sist.shanghaitech.edu.cn/faculty/boris/downloads/houska_cv.pdf
- Orcid ID: https://orcid.org/0000-0002-6761-239X
- Google Scholar: scholar.google.com/citations?user=FetRI5cAAAAJ&hl=en
- Scopus: https://www.scopus.com/authid/detail.uri?authorId=23008711800
- ResearchGate: https://www.researchgate.net/profile/Boris_Houska

Advising

Postdocs

- Main supervisor of Mario E. Villanueva, ShanghaiTech University, 2017–present.
  (Winner of the 2016 Dudley Newitt Prize)

Graduate Students

- Main supervisor of Xu (Michael) Du, ShanghaiTech University, 2017–present.
- Main supervisor of Kai Wang, ShanghaiTech University, 2017–present.
- Main supervisor of Yanlin Zha, ShanghaiTech University, 2015–present.
  (Part time intern at ABB Shanghai)
- Main supervisor of Jiaqi (Catherine) Li, ShanghaiTech University, 2015–present.
- Main supervisor of Xuhui Feng, ShanghaiTech University, 2014–present.
- Main supervisor of Yuning Jiang, ShanghaiTech University, 2014–present.

Undergraduate Students

- Main supervisor of Haimin Hu, ShanghaiTech University, 2017–present.
  (Concurrent enrollment student at University of California, Berkeley)
- Main supervisor of Jiahe Shi, ShanghaiTech University, 2017–present.
  (Semi-Finalist at Microsoft Imagine Cup, 2017)
- Main supervisor of Yi Zheng, ShanghaiTech University, 2017–present.

Visiting Postdocs

- Host of Juraj Oravec, ShanghaiTech University, September 2016.
  (postdoc at Slovak Institute of Technology in Bratislava)

Visiting Students

- Host of Alexander Murray, ShanghaiTech University, Fall 2017.
  (PhD student at Karlsruhe Institute of Technology)
- Host of Daniela Paksiova, ShanghaiTech University, September 2016.
  (now with Honeywell, Brno)
- Host of Rien Quirynen, Shanghai Jiao Tong University, Spring 2014.
  (now with Mitsubishi Electrical Research Lab)

Co-supervised Students

- Co-supervisor of Mario E. Villanueva, Imperial College London, 2013–2016.
  (Ph.D. 2016, first position: postdoc at Texas A&M, now with ShanghaiTech)
- Co-supervisor of Jai Rayjaguru, Imperial College London, 2013–2016.

Awards to my Students

- DAAD Scholarship for a 4 months research stay at the Institute of Industrial Technology, Bremen (via German Academic Exchange Service) for the project "Robust Model Predictive Control for Carrying Glassplates with KUKA Robots", awarded to Jiaqi C. Li, 2017.
- DAAD Scholarship for a 4 months stay at the Institute of Industrial Technology, Bremen (via German Academic Exchange Service) for the project "Distributed Set-Valued Computation for Traffic Intersection Coordination", awarded to Yanlin Zha, 2017.
- Scholarship for a 3 months research stay at the Institute for Microsystems Engineering (IMTEK), University of Freiburg (via prof. Moritz Diehl), awarded to Yuning Jiang, 2017.
- 2017 National Scholarship (China), awarded to Xuhui Feng, 2017.
- 2016 National Scholarship (China), awarded to Yuning Jiang, 2016.
- 2015 National Scholarship (China), awarded to Yuning Jiang, 2015.

Professional Service

ShanghaiTech Service and Leadership Roles

- Member of SIST Faculty Search Committee, 2015–present.
- Advisory service for the University Leadership on International Faculty Search, 2017.
  (university-wide committee, invited by Vice President Renchang Hua)
- Chair of SIST Graduate Admission Committee, March 2017.
- Member of SIST Seminar Committee, 2017–present.
- Member of SIST Public Relations Committee, 2015–2016.

Technical Meetings—Leadership Roles

- Organizer of the Scientific Network Meeting "Regulation of Mobile Robots using MPC: Beyond Set Point Stabilization", Chalmers University of Technology, Gothenburg, Sweden, September 4–6, 2017.
  (together with prof. Karl Worthmann and Dr. Mario Zanon)
- Organizer of the "2015 ShanghaiTech Workshop on Model Predictive Control", School of Information Science and Technology, ShanghaiTech, China, December 11, 2015.
- Organizer of the "FRIAS Workshop on Robust Optimization and Control", Freiburg Institute for Advanced Studies, University of Freiburg, Germany, August 20, 2014.
- Co-organizer of the OPTEC Workshop on Distance Measures and Eigenvalue Optimization, June 19-20, Leuven, 2008.
  (together with prof. W. Michiels, Dr. J. Vanbierfliet, and prof. M. Diehl)
- Co-organizer of the International Workshop on Modelling and Optimization of Power Generating Kites, January 30, Leuven, 2007.
  (together with A. Ilzhöfer and prof. M. Diehl)

Technical Program Committee

- Program committee member, 15th IEEE International Symposium on Safety, Security, and Rescue Robotics, October 11–13, 2017.
- Program committee member, Airborne Wind Energy Conference, October 5–6, 2017.

Conference Session Chair/Co-chair

- Organizer and chair of the invited session *Global Optimization*, INFORMS Annual Meeting, Houston, USA, October, 2017.
  (together with Dr. Mario E. Villanueva)
- Chair of the sessions "Sparse Representation", ShanghaiTech Symposium on Data Science, Shanghai, June 2015.

- Chair of the sessions "Large Scale Parallel and Distributed Optimization", ShanghaiTech Symposium on Data Science, Shanghai, June 2015.
- Chair of the invited session *Topics in Global Optimization*, INFORMS Annual Meeting, Phoenix, USA, 2012.
- Chair of the session *Robust Nonlinear Control I*, 7th IFAC Symposium on Robust Control Design, Aalborg, Denmark, 2012.
- Co-chair of the session *Robustness Analysis*, 7th IFAC Symposium on Robust Control Design, Aalborg, Denmark, 2012.

Expert Reviewer for Funding Agencies

- Expert reviewer for Research Foundation Flanders (FWO), 2017.
- Expert reviewer for German Research Foundation (DFG), 2016/17.

Technical Reviewer

- Automatica
- IEEE Transactions on Automatic Control
- Mathematical Programming
- Applied Numerical Mathematics
- Structural and Multidisciplinary Optimization
- Journal of Global Optimization (JOGO)
- Optimal Control Applications & Methods (OCAM)
- Systems & Control Letters
- Optimization Letters
- Journal of Control Engineering Practice
- Computers & Chemical Engineering
- Selected international control conferences: CDC, ECC, ACC, IFAC World Congress.

Opponent Services

- External assessor (member of Ph.D. jury committee) of Dries Telen, KU Leuven, 2014.
- Co-examiner of Benedikt Schleusener's Bachelor Defense, University of Freiburg, 2014.

Teaching

Summary

Dr. Houska teaches the undergraduate course *Introduction to Control* and two major graduate courses, named *Linear Systems* and *Numerical Analysis*. All three courses have been developed from scratch at ShanghaiTech University. He offers block courses on *Optimal Control* and contributed to the development of his school's flag-ship lecture on *Introduction to Information Science and Technology* for first year students.

ShanghaiTech University

- EE160—Introduction to Control.
  Spring 2017 and Fall 2017.
  http://sist.shanghaitech.edu.cn/faculty/boris/EE160.html

- EE263—Optimal Control.
  Summer 2016.
  http://sist.shanghaitech.edu.cn/faculty/boris/EE263.html

- EE550—Linear Systems.
  Spring 2015 and Spring 2016.
  http://sist.shanghaitech.edu.cn/faculty/boris/EE550.html

- TF502—Numerical Analysis.
  Fall 2014, Fall 2015, Spring 2017, and Fall 2017.
  http://sist.shanghaitech.edu.cn/faculty/boris/TF502.html

- SI131—Linear Algebra.
  As substitute teacher (2 x 2h): Fall 2017.

- SI100—Introduction to Information Science and Technology
  As assistant teacher: Spring 2015, Spring 2016, and Spring 2017.

University of Freiburg

- Organizer of the "TEMPO-Course on Robust Optimal Control" (together with S. Diamond, Stanford), September 3-4, University of Freiburg, 2014.

Shanghai Jiao Tong University

- Assistant teacher of the course "Basic Principles of Automation" (together with Wei Wang), Fall 2013.

University of Trento

- Co-organizer and teacher of the "Nonlinear Dynamic Optimization Course" (together with M. Diehl), July 4-8, Trento, 2011.

Norwegian University of Science & Technology

- Co-organizer and teacher of the "Numerical Optimal Control Course" (together with M. Diehl), June 7-11, Trondheim, 2010.

KU Leuven

- Organizer of the OPTEC Tutorial Course on Automatic Control and Dynamic Optimization (together with M. Diehl and H.J. Ferreau), July 14-15, Leuven, 2011.
- Co-organizer and teacher of the ATHENS Course on Embedded and Convex Optimization for Control (together with S. Boyd and M. Diehl), March 15-19, Leuven, 2010.
- Co-organizer and teacher of the ATHENS Course on Numerical Optimal Control Algorithms and Applications in Renewable Energy Systems (together with H.J. Ferreau and M. Diehl), November 16-20, Leuven, 2009.

Publications

Summary

Dr. Houska has over 32 journal papers published or in press, one of which has won a best paper award. He has published 36 peer-reviewed conference papers and 2 book chapters. His publications have been cited over 1700 times in Google Scholar with an h-index of 18 as of November 2017. Links to his publications can be found at
scholar.google.com/citations?user=FetRI5cAAAAJ&hl=en

Journal Papers

1. X. Feng, B. Houska. Real-time algorithm for self-reflective model predictive control. *Journal of Process Control*, 2017. (accepted)

2. R. Quirynen, S. Gros, B. Houska, M. Diehl. Lifted collocation integrators for direct optimal control in ACADO Toolkit. *Mathematical Programming Computation*, 2017. (online first)

3. B. Houska, J.C. Li, B. Chachuat. Towards rigorous robust optimal control via generalized high-order moment expansion. *Optimal Control, Applications and Methods*, 2017. (online first)

4. B. Houska, D. Telen, F. Logist, J. Van Impe. Self-reflective model predictive control. *SIAM Journal on Control and Optimization*, Volume 55(5), pp. 2959–2980, 2017.

5. B. Houska, M.A. Müller. Cost-to-travel functions: a new perspective on optimal and model predictive control. *Systems & Control Letters*, Volume 106, pp. 79–86, 2017.

6. R. Quirynen, B. Houska, M. Diehl. Efficient symmetric Hessian propagation for direct optimal control. *Journal of Process Control*, Volume 50, pp. 19–28, 2017.

7. M.E. Villanueva, R. Quirynen, M. Diehl, B. Chachuat, B. Houska. Robust MPC via minmax differential inequalities. *Automatica*, Volume 77, pp. 311–321, 2017.

8. D. Telen, B. Houska, M. Vallerio, F. Logist, J. Van Impe. A study of integrated experiment design for NMPC applied to the Droop model. *Chemical Engineering Science*, Volume 160, pp. 370–383, 2017.

9. J. Rajyaguru, M.E. Villanueva, B. Houska, B. Chachuat. Chebyshev models arithmetic for factorable functions. *Journal of Global Optimization*, Volume 68(2), pp. 413–438, 2017.

10. B. Houska, A. Mohammadi, M. Diehl. A short note on constrained linear control systems with multiplicative ellipsoidal uncertainty. *IEEE Transactions on Automatic Control*, Volume 61(12), pp. 4106–4111, 2016.

11. B. Houska, J. Frasch, M. Diehl. An augmented Lagrangian based algorithm for distributed non-convex optimization. *SIAM Journal on Optimization*, Volume 26(2), pp. 1101–1127, 2016.

12. D. Telen, B. Houska, F. Logist, J. Van Impe. Multi-purpose economic optimal experiment design applied to model based optimal control. *Computers & Chemical Engineering*, Volume 94, pp. 212–220, 2016.

13. B. Houska, M.E. Villanueva, B. Chachuat. Stable set-valued integration of nonlinear dynamic systems using affine set parameterizations. *SIAM Journal on Numerical Analysis*, Volume 53(5), pp. 2307–2328, 2015.

14. B. Houska. Enforcing asymptotic orbital stability of economic model predictive control. *Automatica*, Volume 57, pp. 45–50, 2015.

15. B. Houska, D. Telen, F. Logist, M. Diehl, J. Van Impe. An economic objective for optimal experiment design of nonlinear dynamic processes. *Automatica*, Volume 51, pp. 98–103, 2015.

16. M.E. Villanueva, B. Houska, B. Chachuat. Unified framework for the propagation of continuous-time enclosures for parametric nonlinear ODEs. *Journal of Global Optimization*, Volume 62(3), pp. 575–613, 2015.

17. D. Telen, M. Vallerio, L. Cabianca, B. Houska, J. Van Impe, F. Logist. Approximate robust optimal control of nonlinear dynamic systems under parametric uncertainty and process noise. *Journal of Process Control*, Volume 33, pp. 140–154, 2015.

18. B. Houska, B. Chachuat. Branch-and-lift algorithm for deterministic global optimization in nonlinear optimal control. *Journal of Optimization Theory and Applications*, Volume 162(1), pp. 208–248, 2014.

19. D. Telen, F. Logist, R. Quirynen, B. Houska, M. Diehl, J. Van Impe. Optimal experiment design for nonlinear dynamic (bio)chemical systems using sequential semidefinite programming. *AiChE Journal*, Volume 60, pp. 1728–1739, 2014.

20. B. Houska and M. Diehl. Nonlinear robust optimization via sequential convex bilevel programming. *Mathematical Programming, Series A*, Volume 142(1), pp. 539–577, 2013.

21. M. Diehl, B. Houska, O. Stein, P. Steuermann. A lifting method for generalized semi-infinite programs based on lower level Wolfe duality. *Computational Optimization and Applications*, Volume 54, pp. 189–210, 2013.

22. D. Telen, B. Houska, F. Logist, E. Van Derlinden, M. Diehl and J. Van Impe. Optimal experiment design under process noise using Riccati differential equations. *Journal of Process Control*, Volume 23, pp. 613–629, 2013.

23. B. Houska and M. Diehl. A quadratically convergent inexact SQP method for optimal control of differential algebraic equations. *Optimal Control, Applications and Methods*, Volume 34, pp. 396–414, 2013.

24. F. Logist, D. Telen, B. Houska, M. Diehl and J. Van Impe. Multi-objective optimal control of dynamic bioprocesses using ACADO Toolkit. *Bioprocess and Biosystems Engineering*, Volume 36, pp. 151–164, 2013.

25. B. Houska, F. Logist, J. Van Impe, M. Diehl. Robust optimization of nonlinear dynamic systems with application to a jacketed tubular reactor. *Journal of Process Control*, Volume 22(6), pp. 1152–1160, 2012.

26. F. Logist, M. Vallerio, B. Houska, M. Diehl, and J. Van Impe. Multi-objective optimal control of chemical processes using ACADO Toolkit. *Computers & Chemical Engineering*, Volume 37, pp. 191-199, 2012.

27. B. Houska, H.J. Ferreau, and M. Diehl. An auto-generated real-time iteration algorithm for nonlinear MPC in the microsecond range. *Automatica*, Volume 47(10), pp. 2279-2285, 2011.

28. B. Houska, H.J. Ferreau, and M. Diehl. ACADO Toolkit – An open source framework for automatic control and dynamic optimization. *Optimal Control, Applications and Methods*, Volume 32, pp. 298-312, 2011.

29. F. Logist, B. Houska, M. Diehl, and J. Van Impe. Robust multi-objective optimal control of uncertain biochemical processes. *Chemical Engineering Science*, Volume 66(20), pp. 4670-4682, 2011.

30. F. Logist, B. Houska, M. Diehl, and J. Van Impe. Fast Pareto set generation for nonlinear optimal control problems with multiple objectives. *Structural and Multidisciplinary Optimization*, Volume 42(4), pp. 591-603, 2010.

31. M. Diehl and B. Houska. Wind power via fast flying kites: a challenge for optimization and control. *at - Automatisierungstechnik*, Volume 57(10), pp. 525-533, 2009.

32. A. Ilzhoefer, B. Houska, and M. Diehl. Nonlinear MPC of kites under varying wind conditions for a new class of large scale wind power generators. *International Journal of Robust and Nonlinear Control*, Volume 17(17), pp. 1590–1599, 2007.

Submitted Journal Papers

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5. M.E. Villanueva, B. Chachuat, B. Houska. Robust optimal feedback control for periodic biochemical processes. (submitted)

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Software

1. Dr. Houska is one of the leading developers of the open-source optimal control package ACADO Toolkit. The software can be downloaded free of charge at www.acadotoolkit.org.

Miscellaneous

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