

Christoffer Sloth
The Maersk Mc-Kinney Moller Institute
SDU Robotics
Email: chsl@mmmi.sdu.dk
Mobile: +4551361837
Web address: <https://userspace.tek.sdu.dk/chsl/>

Research outputs

Assembly Strategy for Deformable Ring-Shaped Objects

Kim, Y. & Sloth, C., 2021, *International Conference on Intelligent Robots and Systems*.

P-Safe Analysis of Stochastic Hybrid Processes

Wisniewski, R., Bujorianu, M. & Sloth, C., Dec 2020, In: *IEEE Transactions on Automatic Control*. 65, 12, p. 5220-5235 8989815.

Towards robot cell matrices for agile production—SDU Robotics' assembly cell at the WRC 2018

Schlette, C., Buch, A. G., Hagelskjær, F., Iturrate, I., Kraft, D., Kramberger, A., Lindvig, A. P., Mathiesen, S., Petersen, H. G., Rasmussen, M. H., Savarimuthu, T. R., Sloth, C., Sørensen, L. C. & Thulesen, T. N., 17. Apr 2020, In: *Advanced Robotics*. 34, 7-8, p. 422-438

Adapting Learning by Demonstration for Robot Based Part Feeding Applications

Kramberger, A., Juan, I. I. S., Deniša, M., Mathiesen, S. & Sloth, C., 2020, *Proceedings of the 2020 IEEE/SICE International Symposium on System Integration, SII*. IEEE, p. 954-959

Fast robust peg-in-hole insertion with continuous visual servoing

Haugaard, R. L., Langaa, J., Sloth, C. & Buch, A. G., 2020. 10 p.

Towards easy setup of robotic assembly tasks

Sloth, C., Kramberger, A. & Juan, I. I. S., 2020, In: *Advanced Robotics*. 34, 7-8, p. 499-513

Towards Reversible Dynamic Movement Primitives

Juan, I. I. S., Sloth, C., Kramberger, A., Petersen, H. G., Østergård, E. H. & Savarimuthu, T. R., 2019, *2019 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*. IEEE, p. 5063-5070 8968270. (IEEE International Conference on Intelligent Robots and Systems. Proceedings).

Computation of Safe Path Velocity for Collaborative Robots

Sloth, C. & Petersen, H. G., 27. Dec 2018, *Proceedings of the 2018 IEEE/RSJ International Conference on Intelligent Robots and Systems*. IEEE, p. 6142-6148

On the existence of polynomial Lyapunov functions for rationally stable vector fields

Leth, T., Wisniewski, R. & Sloth, C., 23. Jan 2018, *Proceedings of the 2017 IEEE 56th Annual Conference on Decision and Control*. IEEE, p. 4884-4889

Nonnegative Polynomial with no Certificate of Nonnegativity in the Simplicial Bernstein Basis

Sloth, C., 12. Oct 2017, In: *arxiv.org*.

Control of Wall Mounting Robot

Sloth, C. & Pedersen, R., 2017, In: *IFAC-PapersOnLine*. 50, 1, p. 5648-5653

Evaluation of communication network state estimators for adaptive power-balancing

Findrik, M., Pedersen, R., Sloth, C. & Schwefel, H. P., 2017, In: *Computer Science - Research and Development*. 32, 1-2, p. 247-254

Lyapunov Function Synthesis - Infeasibility and Farkas' Lemma

Leth, T., Sloth, C., Wisniewski, R. & Sankaranarayanan, S., 2017, In: IFAC-PapersOnLine. 50, 1, p. 1667-1672

Network condition based adaptive control and its application to power balancing in electrical grids

Pedersen, R., Findrik, M., Sloth, C. & Schwefel, H. P., 2017, In: Sustainable Energy, Grids and Networks. 10, p. 118-127

Stochastic Stability Analysis of Control Systems with Uncertain Communication

Sloth, C. & Wisniewski, R., 2017, In: IFAC-PapersOnLine. 50, 1, p. 6172-6177

On the computation of Lyapunov functions for interconnected systems

Sloth, C., 19. Oct 2016, *2016 IEEE Conference on Computer Aided Control System Design, CACSD 2016 - Part of 2016 IEEE Multi-Conference on Systems and Control*. IEEE, Vol. 2016-October. p. 850-855 6 p. 7602545

Test-bed assessment of communication technologies for a power-balancing controller

Findrik, M., Pedersen, R., Hasenleithner, E., Sloth, C. & Schwefel, H. P., 14. Jul 2016, *2016 IEEE International Energy Conference, ENERGYCON 2016*. IEEE, 7514115

Safety verification of piecewise-deterministic markov processes

Wisniewski, R., Sloth, C., Bujorianu, M. & Piterman, N., 11. Apr 2016, *Proceedings of the 19th International Conference on Hybrid Systems: Computation and Control*. Association for Computing Machinery, p. 257-266 10 p.

Stability of drinking water distribution network

Leth, T., Kallesøe, C. S., Sloth, C. & Wisniewski, R., 6. Jan 2016, *2016 European Control Conference, ECC 2016*. IEEE, p. 1764-1769 6 p. 7810546

Verification of power grid voltage constraint satisfaction-A barrier certificate approach

Pedersen, R., Sloth, C. & Wisniewski, R., 6. Jan 2016, *2016 European Control Conference, ECC 2016*. IEEE, p. 447-452 6 p. 7810325

Active power management in power distribution grids: Disturbance modeling and rejection

Pedersen, R., Sloth, C. & Wisniewski, R., 2016, *Proceedings of the 2016 European Control Conference*. IEEE, p. 1782-1787 7810549

Converse Barrier Certificate Theorems

Wisniewski, R. & Sloth, C., 2016, In: IEEE Transactions on Automatic Control. 61, 5, p. 1356-1361 6 p., 7236867.

Coordination of electrical distribution grid voltage control - a fairness approach

Pedersen, R., Sloth, C. & Wisniewski, R., 2016, *Proceedings of the 2016 IEEE Conference on Control Applications*. IEEE, p. 291-296 6 p.

Lyapunov function synthesis - Algorithm and software

Leth, T., Sloth, C. & Wisniewski, R., 2016, *Proceedings of the 2016 IEEE Conference on Computer Aided Control System Design, CACSD 2016 - Part of 2016 IEEE Multi-Conference on Systems and Control*. IEEE, Vol. 2016-October. p. 641-647 7 p. 7602539

DiSC: A simulation framework for distribution system voltage control

Pedersen, R., Sloth, C., Andresen, G. B. & Wisniewski, R., 16. Nov 2015, *2015 European Control Conference, ECC 2015*. IEEE, p. 1056-1063 8 p. 7330680

Stability verification for energy-aware hydraulic pressure control via simplicial subdivision

Sloth, C. & Wisniewski, R., 16. Nov 2015, *2015 European Control Conference, ECC 2015*. IEEE, p. 2694-2699 6 p. 7330945

Supermarket defrost cycles as flexible reserve

Pedersen, R., Sloth, C., Wisniewski, R. & Green, T., 4. Nov 2015, *Proceedings of the 2015 IEEE Conference on Control and Applications*. IEEE, p. 744-749 6 p. 7320706

Smart grid control and communication: The SmartC2net Real-Time HIL approach

Ciontea, C. I., Pedersen, R., Kristensen, T. L. F., Eg Sloth, C., Olsen, R. L. & Iov, F., 31. Aug 2015, *2015 IEEE Eindhoven PowerTech, PowerTech 2015*. IEEE, 7232693

Safety Analysis of Stochastic Dynamical Systems

Sloth, C. & Wisniewski, R., 2015, In: *IFAC-PapersOnLine*. 48, 27, p. 62-67 6 p.

Towards safe robotic surgical systems

Sloth, C. & Wisniewski, R., 2015, *Recent Advances in Mechanism Design for Robotics: Proceedings of the 3rd IFToMM Symposium on Mechanism Design for Robotics, MEDER 2015*. Kluwer Academic Publishers, Vol. 33. p. 165-175 11 p. (Mechanisms and Machine Science, Vol. 33).

Control to facet for polynomial systems

Sloth, C. & Wisniewski, R., 2014, *Proceedings of the 17th International Conference on Hybrid Systems: Computation and Control (Part of CPS Week)*. Association for Computing Machinery, p. 123-132 10 p.

Loss minimization and voltage control in smart distribution grid

Juelsgaard, M., Sloth, C., Wisniewski, R. & Pillai, J., 2014, *Proceedings of the 19th IFAC World Congress IFAC 2014*. IFAC Secretariat, Vol. 19. p. 4030-4037 8 p.

Robust stability of switched systems

Sloth, C. & Wisniewski, R., 2014, In: *Proceedings of the IEEE Conference on Decision and Control*. 2015, February, p. 4685-4690 6 p., 7040119.

Completeness of Lyapunov abstraction

Wisniewski, R. & Sloth, C., 22. Aug 2013, In: *Electronic Proceedings in Theoretical Computer Science*. 124, p. 26-42 17 p.

Complete abstractions of dynamical systems by timed automata

Sloth, C. & Wisniewski, R., Feb 2013, In: *Nonlinear Analysis: Hybrid Systems*. 7, 1, p. 80-100 21 p.

Converse barrier certificate theorem

Wisniewski, R. & Sloth, C., 2013, *Proceedings of the 2013 IEEE 52nd Annual Conference on Decision and Control*. IEEE, p. 4713-4718 6 p. 6760627

Abstractions for mechanical systems

Sloth, C. & Wisniewski, R., 2012, *4th IFAC Workshop on Lagrangian and Hamiltonian Methods for Non Linear Control, LHMNLC 2012*. 19 ed. Vol. 45. p. 96-101

Compositional safety analysis using barrier certificates

Sloth, C., Pappas, G. J. & Wisniewski, R., 2012, *HSCC'12 - Proceedings of the 15th ACM International Conference on Hybrid Systems: Computation and Control*. p. 15-24

On the existence of compositional barrier certificates

Sloth, C., Wisniewski, R. & Pappas, G. J., 2012, *IEEE Annual Conference on Decision and Control (CDC)*. p. 4580-4585 (Proceedings of the IEEE Conference on Decision and Control).

Structured linear parameter varying control of wind turbines

Adegas, F. D., Sloth, C. & Stoustrup, J., 2012, *Control of Linear Parameter Varying Systems with Applications*. Mohammadpour, J. & W. Scherer, C. (eds.). Springer, p. 303-337

Abstraction of dynamical systems by timed automata

Wisniewski, R. & Sloth, C., 2011, In: Modeling, Identification and Control. 32, 2, p. 79-90

Algorithmic approach to abstracting linear systems by timed automata

Sloth, C. & Wisniewski, R., 2011, *Proceedings of the 18th IFAC World Congress*. PART 1 ed. Vol. 18. p. 4546-4551

Robust and fault-tolerant linear parameter-varying control of wind turbines

Sloth, C., Esbensen, T. & Stoustrup, J., 2011, In: Mechatronics. 21, 4, p. 645-659

Verification of continuous dynamical systems by timed automata

Sloth, C. & Wisniewski, R., 2011, In: Formal Methods in System Design. 39, 1, p. 47-82

Abstraction of continuous dynamical systems utilizing lyapunov functions

Sloth, C. & Wisniewski, R., 2010, *2010 49th IEEE Conference on Decision and Control, CDC 2010*. p. 3760-3765 6 p. 5717270

Active and passive fault-tolerant LPV control of wind Turbines

Sloth, C., Esbensen, T. & Stoustrup, J., 2010, *Proceedings of the 2010 American Control Conference, ACC 2010*. p. 4640-4646 7 p. 5531061

A Youla-Kucera approach to gain-scheduling with application to wind turbine control

Niss, M. O. K., Esbensen, T., Sloth, C., Stoustrup, J. & Odgaard, P. F., 2009, *2009 IEEE International Conference on Control Applications, CCA '09*. p. 1489-1494 6 p. 5281172

Robust LMI-based control of wind turbines with parametric uncertainties

Sloth, C., Esbensen, T., Niss, M. O. K., Stoustrup, J. & Odgaard, P. F., 2009, *2009 IEEE International Conference on Control Applications, CCA '09*. p. 776-781 6 p. 5281171