

DUARTE ANTUNES

CURRICULUM VITAE

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|-----------------|---|--------------|
| EDUCATION | PhD | |
| | Instituto Superior Técnico (IST), Lisbon, Dep. of Electrical Engineering Title: Stochastic, Dynamic, and Periodic Networked Control Systems Classification: very good with distinction (cum laude, top 10%) | 2006-2011 |
| | LICENCIATURA | |
| | Electrical and Computer Engineering, IST, Lisbon Classification: very good with distinction, GPA 18/20 (top 2 of 250 students) | 2000-2005 |
| WORK EXPERIENCE | ASSISTANT PROFESSOR | |
| | Eindhoven University of Technology (TU/e), Dep. of Mechanical Eng. Control Systems Technology. | 2013-present |
| | POSTDOCTORAL RESEARCHER | |
| | Eindhoven University of Technology (TU/e), Dep. of Mechanical Eng. Hybrid and Networked Systems. | 2011-2013 |
| | VISITING RESEARCHER | |
| | University of California, Santa Barbara | 2007-2009 |
| | SOFTWARE DEVELOPER | |
| | Dynamical Systems and Ocean Robotics Institute for Systems and Robotics, Lisbon Project: Monitoring battery levels for underwater vehicles | 2005-2006 |
| TEACHING | RESPONSIBLE LECTURER AND COORDINATOR | |
| | Department of Mechanical Eng., TU/Eindhoven | |
| | Optimal control and dynamic programming (5ECTS), 4SC000 (70-100 student/y) | 2020-2021 |
| | | 2019-2020 |
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| | | 2015-2016 |
| | Honors track High Tech Systems (15ECTS), HA800, HA850, (15-20 students/y) | 2019-2020 |
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| | 2016-2017 | |
| | 2015-2016 | |
| | 2 nd Module of Mechatronics Systems Design PDEng program (4-7students/y) | 2019-2020 |
| | | 2018-2019 |
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| | | 2016-2017 |
| | | 2015-2016 |

Optimal control (3ECTS), 4K730, 153 students 2014-2015

TEACHING ASSISTANT

Department of Mechanical Eng., TU/Eindhoven
Signalen 4CA00, System Theory for control 4K580 2013-2015

Department of Mathematics, IST, Lisbon
Differential equations, complex analysis, computational mathematics 2004-2006

Numerical Analysis 2011

GRANTS

- Educational funds TU/e, 'Using Matlab Live Scripts in Education', 2019-2022,
- Drone safety cluster, Project number 10022398 2016-2019, Principal investigator from TU/e and co-promoter. 2016-2020,
- Horizon 2020 Marie Curie grant proposal oCPS – Platform-aware Model-driven Optimization of Cyber-Physical Systems. 1 PhD student, Topic: Resource-aware control – an approximate dynamic approach. 2016-2020,
- 'Drone-based multi-agent system design for farming' granted by TKI HTSM (Topconsortium voor Kennis en Innovatie, Topsector Hightech Systemen & Materialen), 1 PhD student: co-promoter, 2016-2020
- STW Take-off grant 2014, Novel Unmanned Aerial System for Industrial Inspection: An innovative design, a Robust Solution, Project number 14119, 2014-2015, in collaboration with Avular, dutch company working on industrial inspection using drones, principal investigator from TU/e.
- Synergia – System change for new ecology-based and resource efficient growth with high tech in agriculture, NWO cross-over program. Status: passed the first round; deadline for the final round is May 21st, 2019. Two PhD positions.

RESEARCH INTERESTS

MAIN INTERESTS

Stochastic and optimal control, Approximate Dynamic Programming,
Networked Control, Event-Triggered Control, Frequency-domain analysis,
Guidance Navigation and Control for Autonomous vehicles, Quadcopters.

OTHER INTERESTS

Multi-agent systems, Switching and Hybrid Systems, Systems Biology, Machine and reinforcement learning.

AWARDS

- IEEE Control Systems Letters Outstanding Paper Award 2018 for the paper 'B. A. Khashooei, D. J. Antunes and W. P. M. H. Heemels, "A Consistent Threshold-Based Policy for Event-Triggered Control," IEEE Control Systems Letters, Vol. 2, No. 3, pages 447-452, 2018.
- Best paper award at the IEEE International conference on event-based control, communication and signal processing 2017 for the paper 'B. A. Khashooei, B. van Eekelen, D. J. Antunes and W. P. M. H. Heemels, "Suboptimal event-triggered control over unreliable communication links with experimental validation".
- Supervisor of Yuri Steinbuch, who won the TATA Steel Afstudeerprijs voor Werkuigbouwkunde en Materiaalkunde, 2016. Thesis title: Sequential Optimal and Predictive Control for Cascaded Systems with Applications to Quadcopters.
- Best poster award (top 3 presentations of 60 candidates) in the 24 hour meeting 2012, Control Systems Technology, Dynamic & Control and Hybrid & Networked Control Systems, Deurne, November, 2012. Poster title: 'Rollout Event-Triggered Control: beyond periodic control performance'.
- PhD predicate very good with distinction (top ten percent, cum laude), Instituto Superior Técnico (IST, Lisbon, Portugal), 2011.
- Outstanding Reviewer of the IEEE Control Systems Letters - 2020
- Outstanding reviewer for 2010-2011 for Automatica Journal, Elsevier (yearly 25 reviewers from a pool of about 2000 are selected for the award).
- Co-author of the best student paper award at the 17th IFAC Symposium on Automatic Control

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in Aerospace, Toulouse, June, 2007, for the paper 'B. Guerreiro, C. Silvestre, R. Cunha, D. Antunes. *Trajectory Tracking H2 Controller for Autonomous Helicopters: and Application to Industrial Chimney Inspection.*'

- Awarded honorable mention in 2004 for being one of the top 2 students among all the students in Electrical and Computer Engineering at IST, Lisbon, Portugal (5 years times 250 students per year).

INVITED TALKS AND COURSES

- Universitat Politecnica de Valencia, Spain, 2017, invited by Prof. Angel Cuenca: 3 day course, title: 'Networked and event-triggered control systems'.
- Universitat Paderborn, Germany, 2016 invited by Prof. Daniel Quevedo, title: 'Linear quadratic regulators using informed policies'.
- Océ – a Canon company, Venlo Eindhoven, The Netherlands, 2014, invited by Ir. Ivan Smits, title: 'Frequency domain tools for networked control systems'.
- Keio university, 2014, Japan, invited by Prof. Toru Namerikawa, title: 'Rollout event-triggered control: beyond control performance'.
- Karlsruher Institut für Technologie, Germany, 2014, invited by Prof. Uwe Hanebeck, title: 'Rollout event-triggered control: beyond control performance'.
- Rijksuniversiteit Groningen, The Netherlands, 2013, invited by Prof. Claudio de Persis and Prof. Pietro Tesi, title: 'Rollout event-triggered control: beyond control performance'.
- Université Joseph Fourier-Chaire CNRS, Grenoble, France, 2013, Invited by Prof. Alain Kibangou, title: 'Rollout event-triggered control: beyond control performance'.
- Cody coursework: an automatic assessment tool for MATLAB programming assignments, Special Session, Conference on Decision and Control, 2016.

RESEARCH COMM. SERVICE

ASSOCIATE EDITOR FOR JOURNALS

- Associate Editor, IEEE transaction on Automatic Control November 2020-present
- Associate Editor, IEEE CSS-letters Jan 2020-present
- Associate Editor, IFAC journal Nonlinear Analysis: Hybrid Systems, Jan. 2019-present

ASSOCIATE EDITOR OF THE IEEE CONTROL SYSTEM SOCIETY

- IEEE Conference editorial board 2014-present.
- Served as associate editor for: Conference on decision and control, 2014, 2015, 2015, 2016, 2017, 2018 and American control conference, 2015, 2016, 2017, 2018, European Control Conference 2013, 2014, 2015, 2016, 2018.

INTERNATIONAL PROGRAMME COMMITTEE (IPC) MEMBER

- European Control Conference, 2013.
- 4th IFAC Workshop on Distributed Estimation and Control in Networked Systems, 2013.
- IFAC Conference on Analysis and Design of Hybrid Systems, 2018.

REVIEWER

Journals: Automatica, IEEE Transactions on Automatic Control, SIAM Journal on Optimization and Control, International Journal of Robust and Non-linear Control, IEEE transactions on Cybernetics.

Conferences: Conference on Decision and Control, American Control Conference, European Control Conference, IFAC World Congress, IFAC Workshop on Distributed Estimation and Control in Networked Systems.

SESSION CHAIR

- IEEE Conference on Decision and Control 2008, 2014, 2018.
- European control conference, 2014, 2015.

SUPERVISION OF STUDENTS

PHD STUDENTS

- Dr. ir. T. Gommans. Title: Resource-aware control and estimation, TU/e, (September 2011-Feb, 2016). Role: co-promoter.
- Dr. ir. B. Asadi Khashooei, (April 2013-June 2017), TU/e. Title: Event-triggered control for linear systems with performance and rate guarantees. Role: co-promoter.
- Dr. ir. E. van Horsen, (Feb 2014-Feb 2018), TU/e. Title: Data Intensive feedback control: switched systems analysis and design. Role: co-promoter.
- M. Balaghiinaloo, oCPS Marie Curie program. Topic: Resource-aware control – an approximate dynamic approach; Aug-2016-Present. Role: co-promoter.
- A. T. J. R. Cobbenhagen, TKI funding Drone-based multi-agent system design for farming.

Oct.2016 –Present. Role: co-promoter.

- A. Andrien. OP-ZUID funding. Topic Drone safety cluster, machine and reinforcement learning, Jan 2017- Present. Role: co-promoter.

MSC STUDENTS

Present

- N. Janssen, Topic: *Learning techniques for ground robots*, 2018-2019.
- D. Kremers, Topic: *Model predictive control of quadcopters*, 2018-2019.
- B. Bukhter, Topic: *Iterative learning control to land a quadcopter*, 2018-2019.
- M. Vlaswinkel, Topic: *Coping with delays in a control loop using reinforcement learning*, 2018-2019.
- H. Qu, Topic '*Frequency domain tools for Networked Control Systems modelled by Markov Jump Linear Systems.*' 2018-2019.
- H. Ilisu., Topic: '*Yaw estimation for quadcopters*', 2018-2019.
- T. Wolf, Topic: '*Outliner robust Kalman filter*', 2018-2019.

Past

- D.Kooijman. Topic '*Quadrotor Trajectory Tracking using Cascaded Model Predictive Control and Attitude Control on $S2 \times S1$* ' 2018.
- R. Rijk, Topic '*Quadcopter pose estimation using a novel active infrared beacon based vision system*' 2018.
- T. Albers, Topic *Controller Design for a Quad-Copter: Disturbance Rejection in Dynamic Wind Regimes*' 2018.
- A. Vishnu Harran Amul, '*Powertrain Design & Optimization for HEV with CVT and Four Wheel Drive Mechanism*', 2018.
- P. Rooijackers, Title: '*Design and control of a quad-rotor: application to autonomous drone refereeing*', 2017.
- N. Khy, Title : '*Localization of a mobile robot utilizing an on-board camera for guidance and control*', 2017.
- Y.Ye, Title: '*Minimum time optimal control problems for autonomous vehicles*', 2017.
- J. Valle. Title: '*Implementation and comparison of linearization-based and backstepping controllers for quadcopters*', 2017.
- Y. Steinbuch. title: *Sequential Optimal and Predictive Control for Cascaded Systems with Applications to Quadcopters*, 2016, awarded the TATA Steel Afstudeerprijs voor Werktuigbouwkunde en Materiaalkunde, 2016.
- D. Hanssen, Title: *Gymbal control : the added value of sensor integration*, TU/e, 2016.
- B. C. M. van Aert, Title: *Control and coordination of algorithms for autonomous multi-agent quadrotor systems*, 2016.
- S. Prakash, Title: *Self-triggered and event-driven control for linear systems with stochastic delays*, TU/e, 2016. Co-supervised with E. van Horssen (TU/e).
- A. Sinha, Title *Real-Time Path Planning and Collision Avoidance for Robotic Manipulators: Trajectory planning and tracking of a robot arm with a kinect camera*, TU/e, January 2016. Co-supervised with Marc van Eert (Technolution).
- J. Patel, Title: *Tracking a moving object using multiple drones*, TU/e, 2016.
- L. van Heijst, Title: *Energy Aware and Real-Time Trajectory Planning for Unmanned Aerial Vehicles: An Optimization Based Approach* TU/e,. Co-supervised with V. Dolk (TU/e), G. van de Ven (Avular), W.P.H.M. Heemels (TU/e), 2016.
- J. van Dijk, Title: *Creating situational awareness on small scale unmanned aerial vehicles*, 2016 TU/e. Co-supervised with G. van de Ven (Avular).
- R. Collucini, Title: *Cooperative drone defense system*, Politecnico di Torino, 2016. Co-supervised with B. Bona (Politecnico di Torino).
- C. Cruz Silva, Title: *Control and image processing algorithms for quadrotor coverage applications*, IST/Lisbon, Portugal, September 2016. Co-supervised with M. Marques (IST/Lisbon).
- A. Shenoy, Title: *To identify the potential gains of optimal driving strategy in an electric bus*, August 2015-present, TU/e, Co-supervised with T. Hofman.
- B. van Eekelen, Title: *Event-triggered control with packet losses and preview information*, January 2016-present, TU/e. Co-supervised with B. Asadi Khashooei and W.P.M.H. Heemels (TU/e).
- S. Davalos Segura, *Use of Biologically Inspired Algorithms to achieve cooperation between agents*.
- J. van Hooijdonk, *Analysis of Control Systems with induced Measurement Delays: application to ground robot navigation and control*, 2016, Co-supervised with E. van Horssen.
- F. Esposto, *Navigation and collision avoidance algorithms for a cooperative drone defense system*, Poli. di Torino, 2015. Co-supervised with B. Bona (Poli. di Torino).
- W. Geelen, *The impact of deadline misses on the control performance of high-end motion control systems*, TU/e, 2015. Co-supervised with W.P.M.H. Heemels (TU/e), R. Schifferles

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(ASML), J. Voeten (TU/e).

-N. Kontaras, *Predictive Slope Correction in Energy Dispersive X-Ray Spectroscopy*, TU/e, 2014. Co-supervised with B. Janssen (FEI), K. Kooijman (FEI), W.P.M.H Heemels (TU/e).

-A.J.M. Dekkers, *Practical consideration for Networked Control Systems*, TU/e, December, 2013. Co-supervised with N. Bauer (previously at TU/e) and W.P.M.H. Heemels (TU/e).

-J. Verhaegh, Model-based feedforward design for multi-rate motion control of a wafer stage, TU/e, Feb., 2013. Co-supervised with T.Oomen (TU/e), W. Aangenent (ASML), W. Heemels (TU/e).

-V. Dolk, *Mixing and Switching*, TU/e, August 2013. Co-supervised with M. Lauret (previously at TU/e), W.P.M.H. Heemels (TU/e).

-H. A. Seker, *Adaptive pulse processing in Energy dispersive X-ray spectroscopy*, TU/e, August 2013. Co-supervised with B. Janssen (FEI), K. Kooijman (FEI), W.P.M.H Heemels (TU/e).

INTERNSHIPS AND BACHELOR END PROJECTS

Past: Y. Steinbuch, J. van Dijk, R. Offermans, A. Sreenivasulu, S. Thapanda Suresh, H. J. Jongsma, B. Lafci, D. Kooijman, J. Unkel, S. Peters, P. Rooijackers, R. Hendriks, J. Patel, S. Davalos Segura, S. Speckens, N. Rao, V. Kiriouchine, T. Prautzsch, B. Bolk, J. Linssen, A. Amul, L. Aarnoudse, M. Vlaswinkel, L. Koos, T. Wolf, A. Vishnu, R. Bemmels

PUBLICATIONS

JOURNAL PUBLICATIONS

2021

1. Wouter J.P. Kuijpers, Duarte J. Antunes, Silke Hemming, Eldert J. van Henten, Marinus J.G. van de Molengraft, *Fruit development modelling and performance analysis of automatic greenhouse control*, Biosystems Engineering, Volume 208, 2021, Pages 300-318, ISSN 1537-5110,
2. M. H. Balaghi I., D. Antunes, M. Mamduhi and S. Hirche, "Decentralized LQ-Consistent Event-triggered Control over a Shared Contention-based Network," in IEEE Transactions on Automatic Control, doi: 10.1109/TAC.2021.3063307.(available online)
3. Mohammadhadi Balaghiinaloo, Duarte J. Antunes, W.P.M.H. (Maurice) Heemels, *An ℓ_2 -consistent event-triggered control policy for linear systems*, Automatica, Volume 125, 021, 109412, ISSN 0005-1098
4. A.T.J.R. Cobbenhagen, D.J. Antunes, M.J.G. van de Molengraft, W.P.M.H. Heemels, *Opportunities for control engineering in arable precision agriculture*, Annual Reviews in Control, Volume 51, 2021, Pages 47-55, ISSN 1367-5788,
5. Wouter J.P. Kuijpers, David Katzin, Simon van Mourik, Duarte J. Antunes, Silke Hemming, Marinus J.G. van de Molengraft, *Lighting systems and strategies compared in an optimally controlled greenhouse*, Biosystems Engineering, Volume 202, 2021, Pages 195-216, ISSN 1537-5110,
6. D. J. Antunes and H. Qu, "Frequency domain analysis of networked control systems modelled by Markov jump linear systems," in *IEEE Transactions on Control of Network Systems*, doi: 10.1109/TCNS.2021.3050116.

2020

7. A. T. J. R. Cobbenhagen, A. Carè, M. C. Campi, F. A. Ramponi, D. J. Antunes and W. P. M. H. Heemels, "Novel Bounds on the Probability of Misclassification in Majority Voting: Leveraging the Majority Size," in *IEEE Control Systems Letters*, vol. 5, no. 5, pp. 1513-1518, Nov. 2021, doi: 10.1109/LCSYS.2020.3040961.
8. E.P. van Horssen, B.J. Janssen, A. Kumar, D. Antunes, W.P.M.H. Heemels, Image-based feedback control for drift compensation in an electron microscope, IFAC Journal of Systems and Control, Volume 11, 2020, 100074, ISSN 2468-6018,
9. A. R. P. Andriën and D. J. Antunes, "Near-Optimal MAP Estimation for Markov Jump Linear Systems Using Relaxed Dynamic Programming," in *IEEE Control Systems Letters*, vol. 4, no. 4, pp. 815-820, Oct. 2020, doi: 10.1109/LCSYS.2020.2993642.
10. Amin Talaeizadeh, Duarte Antunes, Hossein Nejat Pishkenari, Aria Alasty, *Optimal-time quadcopter descent trajectories avoiding the vortex ring and autorotation states*, Mechatronics, Volume 68, 2020, 102362, ISSN 0957-4158,

2019

11. J. van Zunder, T. Oomen, J. Verhaegh, W. Aangenent, D. J. Antunes, W. P. M. H. Heemels, *Beyond Performance/Cost Trade-offs in Motion Control: A Multirate Feedforward Design with Application to a Dual-Stage Wafer System*, IEEE transactions on Control Systems Technology, 2019 (early access), available online.
12. A. Cuenca, D.J. Antunes, A. Castillo, P. Garcia, B. A. Khashooei, W. Heemels, *Periodic*

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event-triggered sampling and dual-rate control for a wireless networked control system with applications to UAVs, IEEE Transactions on Industrial Electronics 66(4), 3157-3166, April, 2019.

13. E. Pascal van Horsen, Duarte Antunes, Maurice Heemels, *Switched LQG control for linear systems with multiple data-acquisition methods*, Automatica, Volume 103, May 2019, Pages 217-229, online available.
14. E. Pascal van Horsen, J. van Hooijdonk, D. Antunes, W. Heemels, *Event- and deadline-driven control of a self-localizing robot with vision-induced delays*, to appear in IEEE Transactions on Industrial Electronics 2019.
15. D. J. Antunes and M. H. Balaghi I., "Consistent Event-Triggered Control for Discrete-Time Linear Systems With Partial State Information," in *IEEE Control Systems Letters*, vol. 4, no. 1, pp. 181-186, Jan. 2020, doi: 10.1109/LCSYS.2019.2922187.

2018

16. B. A. Khashooei, D. Antunes, W.P.M.H. Heemels *A Consistent Threshold-based Policy for Event-triggered Control*, IEEE Control Systems Letters, Vol. 2, Issue: 3, July, 2018, Pages 447-452.
17. F.D. Brunner, D. Antunes, F. Allgower, *Stochastic Thresholds in Event-Triggered Control: a Consistent Policy for Quadratic Control*, Automatica, Vol 89, March 2018, Pages 376-381.
18. Eelco Pascal van Horsen, Suraj Prakash, Duarte Antunes, W.P.M.H. Heemels, *Event-driven control with deadline optimization for linear systems with stochastic delays*. IEEE Transactions on Control of Network Systems. Volume 5; Issue 4; Dec. 2018.
19. D. Antunes and B. Asadi Khashooei, *Consistent dynamic event-triggered policies for linear quadratic control*, in IEEE Transactions on Control of Network Systems, vol. 5, no.3, pp. 1386-1398, Sep. 2018.

2017

20. D. Antunes, W.P.M.H. Heemels, *Linear quadratic control of switched systems using informed policies*, IEEE Transactions on Automatic Control vol. 62, no. 6, pp. 2675-2688, June 2017.
21. B. A. Khashooei, D. Antunes, W.P.M.H. Heemels, *Output-based event-triggered control with performance guarantees*, IEEE Transactions on Automatic Control, vol. 62, n. 7, p. 3646-3652, July, 2017.
22. T. Gommans, D. Antunes, W.P.M.H. Heemels, *Resource-aware MPC for constrained linear systems: Two rollout approaches*. In Journal of Process Control, Volume 51, Pages 68-83, 2017.

2016

23. D. Antunes, W.P.M.H. Heemels, *Frequency-domain analysis of control loops with intermittent data losses*. IEEE Transactions on Automatic Control, Volume 61(2016) Issue 8, pp. 2295-2300, doi: 10.1109/TAC.2015.2492199.
24. W. Geelen, D. Antunes, R. Schiffelers, J. Voeten, W.P.M.H. Heemels, *The impact of deadline misses on the control performance of high-end motion control systems*, IEEE Transactions on Industrial Electronics, Volume 63, N. 2, February, 2016. doi: 10.1109/TIE.2015.2504339.
25. M. Soltani, C.A. Vargas-Garcia, D. Antunes and A. Singh. *Decomposing variability in protein levels from noisy expression, genome duplication and partitioning errors during cell-divisions*, PLOS Computational Biology, 12, e1004972, 2016.
26. Antunes, A. Singh, *Quantifying gene expression variability arising from randomness in cell division times*. Journal of Mathematical Biology 2015, 71(2), 437-463, 2015. Doi: 10-1109/TIE.2015.2504339.

2015

27. D. Antunes, J.P. Hespanha, C. Silvestre, *Stochastic networked control systems with dynamic protocols*, Asian Journal of Control, Vol.17, No.1, pp. 99-110, January 2015, doi:10.1002/asjc.841.

2014

28. D. Antunes, W. P.M.H. Heemels, *Rollout Event-Triggered Control: Beyond Periodic Control Performance*, IEEE transactions on Automatic Control, special issue on Cyber-Physical Systems, vol. 59, n. 12, pp. 3296-3311, Dec, 2014. Doi: 10.1109/TAC.2014.2351932.
29. T. Gommans, D. Antunes, M. Donkers, P. Tabuada, W. Heemels, *Self-Triggered Linear Quadratic Control*, Automatica, 1279-1287, Volume 50, Issue 4, April 2014. Doi: 10-1016/j.automatica.2014.02.030.
30. D. Antunes, C. Silvestre, and J. P. Hespanha. *Output regulation for non-square multi-rate systems*. Int. J. Robust Nonlinear Control, doi: 10.1002/rnc.2932, 2014; 24; 968-990.

2013

31. D. Antunes, J. P. Hespanha, and C. Silvestre. *Stability of networked control systems with asynchronous renewal links: An impulsive systems approach*. Automatica, Volume 49, Issue 2, February (2013), Pages 402-413, ISSN 0005-1098, 10.1016/j.automatica.2012.11.033.
32. D. Antunes, J. P. Hespanha, and C. Silvestre. *Stochastic Hybrid Systems with Renewal Transitions: Moment Analysis with Application to Networked Control Systems with Delays*. SIAM J. on Control and Optimization, 51(2): 1481-1499 (2013). 2012
33. D. Antunes, J. P. Hespanha, and C. Silvestre. *Volterra integral approach to impulsive renewal systems: Application to networked control*. IEEE transactions on Automatic Control, vol. 57, no.3, pp. 607-619, March 2012. 2011
34. D. Antunes, C. Silvestre, and R. Cunha. *On the design of multi-rate tracking controllers: Application to rotorcraft guidance and control*. Int. J. Robust Nonlinear Control, vol. 20, pp. 1879- 1902, Nov. 2010.

CONFERENCE PUBLICATIONS

- 2020
35. A. Andriën, D. Kremers, D. Kooijman and D. Antunes, "Model Predictive Tracking Controller for Quadcopters with Setpoint Convergence Guarantees," 2020 American Control Conference (ACC), 2020, pp. 3205-3210,
36. N. H. J. Janssen, L. Kools and D. J. Antunes, "Embedded Learning-based Model Predictive Control for Mobile Robots using Gaussian Process Regression," 2020 American Control Conference (ACC), 2020, pp. 1124-1130, doi: 10.23919/ACC45564.2020.9147443.
37. M. Balaghiinaloo, D. J. Antunes, V. S. Varma, R. Postoyan and W. P. M. H. M. Heemels, "LQ-power Consistent Control: Leveraging Transmission Power Selection in Control Systems," 2020 European Control Conference (ECC), 2020, pp. 1701-1706, doi: 10.23919/ECC51009.2020.9143963.
- 2019
38. D. Kooijman, Angela P. Schoellig, Duarte Antunes, *Trajectory Tracking for Quadrotors with Attitude Control on $S^2 \times S^1$* , to be presented at European Control Conference, 2019.
39. M. H. Balaghi I, D. J. Antunes and W. P. M. H. M. Heemels, "An L2-Consistent Data Transmission Sequence for Linear Systems," 2019 IEEE 58th Conference on Decision and Control (CDC), 2019, pp. 2622-2627, doi: 10.1109/CDC40024.2019.9029531.
40. A. R. P. Andriën and D. Antunes, "Filtering and smoothing in the presence of outliers using duality and relaxed dynamic programming," 2019 IEEE 58th Conference on Decision and Control (CDC), 2019, pp. 6038-6043, doi: 10.1109/CDC40024.2019.9028946.
- 2018
41. A.T.J.R. Cobbenhagen, D. J. Antunes, M.J.G. van de Molengraft, W.P.M.H. Heemels, *Heterogenous Multi-Agent Resource Allocation through Multi-Bidding with Application to Precision Agriculture*, IFAC, Vol. 51, Issue 23, Pages. 194-199, NecSys 2018.
42. M. Hadi Balaghi I., D. Antunes, Mohammad H. Mamduhi, S. Hirche, *An optimal LQG controller for stochastic event-triggered scheduling through a lossy communication network*, IFAC, Vol. 51, Issue 23, Pages. 58-63, NecSys 2018.
43. D. Antunes, *Nyquist Stability Criteria for Control Systems with Stochastic Delays*, 2018 IEEE Conference on Decision and Control, Miami, Pages 270-275, 2018.
44. M. Hadi Balaghi I., D. Antunes, Mohammad H. Mamduhi, S. Hirche. *A decentralized consistent policy for event-triggered control over a shared contention-based network*, IEEE Conference on Decision and Control, Miami, Pages 1719-1724, 2018.
45. A. Andrien/ D.J. Antunes, M.J.G. van de Molengraft and W.P.M.H. Heemels, *Similarity-Based Adaptive Complementary Filter for IMU Fusion*, 2018 European Control Conference, 2018, Pages, 3044-3049,.
46. Victor Dolk, Menno Lauret, Duarte Antunes, Patrick Anderson, Maurice Heemels, *A switched system approach to optimize mixing of fluids*, 6th IFAC Conference on Analysis and Design of Hybrid Systems, Vol. 51, Issue 16, Pages 31-36, 2018.
- 2017
47. M. Balaghiinaloo, D. Antunes, *Analysis of linear quadratic control loops with decentralized event-triggered sensing: rate and performance guarantees*, 2017 IEEE Conference on Decision and Control, Melbourne, Pages 6702-6707,.
48. A.T.J.R. Cobbenhagen, D.J. Antunes, M.J.G. van de Molengraft and W.P.M.H. Heemels.

- Coverage Control for Outbreak Dynamics*, 2017, IEEE Conference on Decision and Control, Pages 984-989, 2017.
49. B. A. Khashooei, B. van Eekelen, D. J. Antunes and W. P. M. H. Heemels, *Suboptimal event-triggered control over unreliable communication links with experimental validation*, 2017, 3rd International Conference on Event-Based Control, Communication and Signal Processing (EBCCSP), Funchal, 2017, pp. 1-6. (best paper award).
 50. Suraj Prakash, Eelco Pascal van Horssen, Duarte Antunes, W.P.M.H. Heemels, *Self-Triggered and Event-driven control for linear systems with stochastic delays*. American Control Conference, Pages, 3023-3028, 2017.
- 2016
51. D. Antunes B. Asadi Khashooei, *Consistent event-triggered methods for linear quadratic control*. 56th IEEE Conference on Decision and Control (CDC 2015), Las Vegas, USA, Dec 2016, Pages 1358-1363.
 52. E.P. van Horssen, A.R. Baghban Behrouzian, D. Goswami, D. Antunes, T. Basten, W.P.M.H. Heemels, *Switching data-processing methods for feedback control: breaking the speed versus accuracy trade-off*. 2016 European Control conference (ECC 2016), June 29-Jul1, 2016, Aalborg, Denmark, 2571-2577.
- 2015
53. E.P. van Horssen, D. Antunes, W.P.M.H. Heemels, *Switching data-processing methods for feedback control: breaking the speed versus accuracy trade-off*. 55th IEEE Conference on Decision and Control (CDC 2015), p. 2313-2318, Osaka, Japan, Dec 2015.
 54. B. Asadi Khashooei, D. Antunes, W.P.M.H. Heemels, *An event-triggered policy for remote sensing and control with performance guarantees*. 55th IEEE Conference on Decision and Control (CDC 2015), p. 4830-4835, Osaka, Japan, Dec 2015.
 55. D. Antunes, W. Geelen, W.P.M.H. Heemels, *Frequency-domain analysis of real-time and networked control systems with stochastic delays and data drops*, European Control Conference, p. 940-946, Linz, Austria, July, 2015.
 56. Asadi Khashooei, D. Antunes, W.P.M.H. Heemels, *Rollout strategies for output-based event-triggered control*, European Control Conference, p. 2168-2173, Linz, Austria, July, 2015.
 57. J.C.D. van Zundert; J.L.C. Verhaegh; W.H.T.M. Aangenent; T. Oomen, D. Antunes; W.P.M.H. Heemels, *Feedforward for multi-rate motion control: Enhanced performance and cost-effectiveness*, American Control Conference (ACC), 2015, p. 2831-2836, July, 2015.
- 2014
58. D. Antunes, W.P.M.H. Heemels, *Performance analysis of a class of linear quadratic regulators for switched linear systems*. 54th IEEE Conference on Decision and Control (CDC 2012), p. 5475-5480, Los Angeles (USA), Dec 2014.
 59. D. Antunes, W. Geelen, W.P.M.H. Heemels, *Root-Locus Analysis of randomly sampled systems*, European Control Conference, p. 1618-1624, Strasbourg, France, June, 2014.
- 2013
60. D. Antunes, A. Singh, *Computing mRNA and protein statistical moments for a renewal model of stochastic gene-expression*, 52th IEEE Conference on Decision and Control, 2013, pp. 7199-7204.
 61. D. Antunes, *Event-Triggered Control under Sporadic Poisson Events and Wiener Processes*, 4th IFAC Workshop on Distributed Estimation and Control in Networked Systems (NecSys), 46(27), 269-276, September 2013.
- 2012
62. D. Antunes, W. P. M. H. Heemels, P. Tabuada, *Dynamic Programming Formulation of Periodic Event-Triggered Control: Performance Guarantees and Co-Design*, 51th IEEE Conference on Decision and Control (CDC 2012), p. 7212-7217, Maui, Hawaii, USA, Dec 2012.
 63. D. Antunes, W.P.M.H. Heemels, J.P. Hespanha, C. Silvestre, *Scheduling measurements and controls over networks — Part I: Rollout strategies for protocol design*, American Control Conference (ACC), 2012, pp.2036-2041, 27-29 June 2012.
 64. D. Antunes, W.P.M.H. Heemels, J.P. Hespanha, C. Silvestre, *Scheduling measurements and controls over networks — Part II: Rollout strategies for simultaneous protocol and controller design*, American Control Conference (ACC), 2012, pp.2042-2047, 27-29 June 2012.
- 2011
65. D. Antunes, D. Silvestre, C. Silvestre, *Average consensus and gossip algorithms in networks with stochastic asymmetric communications*, 50th IEEE Conference on Decision and Control and European Control Conference (CDC-ECC), pp.2088-2093, 12-15 Dec. 2011.
 66. D. Antunes, J. Hespanha, C. Silvestre, *Stochastic networked control systems with dynamic protocols*, American Control Conference (ACC), 2011, pp.1686-1691, June 29, 2011-July 1

2011.

2010

67. D. Antunes, J. Hespanha, C. Silvestre, *Impulsive systems triggered by superposed renewal processes*, 49th IEEE Conference on Decision and Control (CDC), 2010 pp.1779-1784, 15-17, Dec. 2010.

68. D. Antunes, J. Hespanha, C. Silvestre, *Stochastic Hybrid Systems with renewal transitions*, American Control Conference (ACC), 2010, pp.3124-3129, June 30 2010-July 2 2010.

2009

69. D. Antunes, J. Hespanha, C. Silvestre, *Control of impulsive renewal systems: Application to direct design in networked control*, Decision and Control, 2009 held jointly with the 2009 28th Chinese Control Conference. CDC/CCC 2009. Proceedings of the 48th IEEE Conference on, pp.6882-6887, 15-18 Dec. 2009.

70. D. Antunes, J. Hespanha, C. Silvestre, *Stability of impulsive systems driven by renewal processes*, American Control Conference, 2009. ACC '09. , pp.4032-4037, 10-12 June 2009.

2008

71. D. Antunes, J. Hespanha, C. Silvestre, N. Kataria, F. Brewer, *Computationally efficient methods for digital control*, 47th IEEE Conference on Decision and Control, 2008, pp.502-507, 9-11 Dec. 2008.

72. D. Antunes, C. Silvestre, R. Cunha, *Linear parameter varying control for sampled-data multi-rate systems*. Proceedings of the 17th IFAC World Congress, July 6 -11 2008, Seoul, South Korea, (pp. 11480-11485). Oxford: Pergamon.

73. D. Antunes, C. Silvestre, R. Cunha, *Multi-rate path-following control for unmanned air vehicles*. Proceedings of the 17th IFAC World Congress, July 6-11, 2008, Seoul, Korea, (pp. 1-6). Oxford: Pergamon.

2007

74. D. Antunes, C. Silvestre, R. Cunha, *On the design of multi-rate tracking controllers : an application to rotorcraft guidance and control*. Proceedings of the AIAA Guidance, Navigation, and Control Conference 2007, 23-27 August 2007, Hilton Head, South Carolina, (pp. 1-25). Hilton Head: AIAA.

75. B. Guerreiro, C. Silvestre, R. Cunha, D. Antunes. *Trajectory Tracking H2 Controller for Autonomous Helicopters: and Application to Industrial Chimney Inspection*. Proceedings of the 17th IFAC Symposium on Automatic Control in Aerospace, 25-29 June 2007, Toulouse, France, IFAC.

2006

76. R. Cunha, D. Antunes, P. Gomes, C. Silvestre. *A path-following preview controller for autonomous air vehicles*, Proceedings of the AIAA Guidance, Navigation, and Control Conference 2006, 21-24 August 2006, Keystone, Colorado., (pp. 1-21). Keystone: AIAA.

SUBMITTED

OTHER

77. Automating Grading of Assignments in a Matlab Programming Course, Duarte Guerreiro Tome' Antunes, Technische Universiteit Eindhoven, Mathworks, Technical Articles and Newsletters, 2016.

78. PhD Thesis, Stochastic, Dynamic, and Periodic Networked Control Systems, Instituto Superior Tecnico, Lisbon, 2011.

79. *Licenciatura* (in Portuguese), Seguimento Preciso de Caminhos 3D com aplicacao a helicopters Autonomos, Instituto Superior Tecnico, Lisbon, 2005.

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Number of citations 1214, h-index 18, i10-index 31 (as of July, 2021).