

# Ravi Gondhalekar

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## Education

- 2008      **PhD: Tokyo Institute of Technology**, Japan  
Thesis: *Low Complexity Model Predictive Control: Controlled Invariant Feasibility & Performance Analysis*
- 2003      **Nihon University**, Japan. Japanese language program
- 2002      **MEng, BA: University of Cambridge**, UK  
Thesis: *Aerodynamic Flight Envelope Protection*

## Employment

- 2017-      **Draper**, USA. Senior Member of Technical Staff  
Research & develop air & spacecraft guidance & control systems
- 2016-17    **Harvard University**, USA. Researcher  
Develop model predictive control laws & systems for insulin delivery
- 2012-16    **Univ. of California Santa Barbara**, USA. Assoc. project scientist  
Develop model predictive control laws & systems for insulin delivery
- 2008-12    **Osaka University**, Japan. Assistant professor  
Research constrained model predictive control & system theory
- 2004      **Massachusetts Institute of Technology**, USA. Research engineer  
Develop real-time control system for tokamak microwave heater
- 2002      **University of Cambridge**, UK. Research assistant  
Investigate aerodynamic & safety properties of aircraft & controllers
- 2001      **Princeton University**, USA. Research intern  
Develop plasma thruster diagnostic control & data-acquisition system
- 2000      **Pi Technology**, UK. Intern  
Test real-time engine control software & propose code modifications
- 1999      **Rutherford Appleton Laboratory**, UK. Intern  
Analyze spacecraft structures & propose design modifications
- 1997-98    **United Kingdom Atomic Energy Authority**, UK. Intern  
Design temperature control system for tokamak poloidal field coils

## Other appointments

- 2015-16    **Automated Glucose Control LLC**, USA. Engineering consultant  
Productize advanced predictive control algorithms & technology

- 2012 - 16     **William Sansum Diabetes Center**, USA. Adjunct investigator  
 Test control systems that perform automatic insulin delivery
- 2008            **Tokyo Institute of Technology**, Japan. Post-doctoral researcher  
 Research low-complexity model predictive control strategies

**Research interests**

Automatic control, guidance, autonomy, dynamical systems. In particular:

- Dynamical systems & control theory
- Control of constrained systems
- Optimization-based control
- Application of optimization
- Aerospace guidance & control
- Model predictive control
- Safety-critical control
- State estimation

**Languages**

- English        Fluent both written & verbal, casual & technical, 1st language
- German        Fluent both written & verbal, mainly casual
- Japanese      Intermediate level, mainly verbal & casual. Passed Japanese Language Proficiency Test (JLPT) level 2 (1: Proficient – 4: Beginner)
- Spanish        Basic skills

**Computing skills**

- Control        Experience with design, implementation, testing, & operation of safety-critical, real-time control & data-acquisition software (also hardware) in: Matlab, Java (on Android), C++, Simulink, RT-Lab, LabView
- Coding        Matlab, Simulink, Java, C#, C++, C, LabView, Fortran
- Platforms      GNU/Linux, macOS, Windows, Unix, QNX, & standard software
- Various        CPLEX, RT-Lab, LDRA Testbed, AVS Express, SVN, L<sup>A</sup>T<sub>E</sub>X, Emacs

**Memberships**

- AIAA          American Institute of Aeronautics & Astronautics. **Senior member**
- IEEE          Institute of Electrical & Electronics Engineers. **Senior member**
- AOPA          Aircraft Owners & Pilots Association
- SSA          Soaring Society of America

**Professional activities**

**Journal reviewer:** Automatica; Computer Methods & Programs in Biomedicine; IEEE Control Systems Magazine; IEEE Trans. Automatic Control; IEEE Trans. Biomedical Engineering; IEEE Trans. Control Systems Technology; Int. J. Control,

Automation & Systems; Int. J. Robust & Nonlinear Control; Int. J. Systems Science; Mathematical & Computer Modeling of Dynamical Systems; Optimal Control Applications & Methods; Systems & Control Letters

**Conference reviewer:** AACC American Control Conf.; Asian Control Conf.; EUCA European Control Conf.; Hybrid Systems – Computation & Control; IEEE Conf. Control Technology & Applications; IEEE Conf. Decision & Control; IEEE Multi-Conf. Systems & Control; IFAC Conf. Nonlinear Model Predictive Control; IFAC Symp. Nonlinear Control Systems; IFAC Symp. System Identification; IFAC World Congress; Mediterranean Conf. Control & Automation; SICE Annual Conf.

**Book proposal reviewer:** Elsevier

**IEEE:** Senior member advancement review panelist

<b>Teaching activities</b>
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- 2017-           **Draper, USA**  
                  Supervise research students
- 2016-17       **Harvard University, USA**  
                  Supervise research students
- 2012-16       **University of California Santa Barbara, USA**  
                  Supervise & examine research students
- 2008-12       **Osaka University, Japan**  
                  Supervise & examine research students (in Japanese)  
                  Instruct & design undergraduate engineering classes (in Japanese):  
                  – Stabilization of an inverted pendulum  
                  – Dynamical systems modeling & control
- 1997-98       **European School Culham, UK**  
                  Mathematics, physics, & chemistry tutoring

**Theses supervised**

R.H.H. Jiang, *Title TBD*, PhD thesis, Dept. of Aeronautics & Astronautics, Massachusetts Institute of Technology, USA (& Guidance & Control Group, Draper, USA), Date TBD

C.E. Oestreich, *Title TBD*, Master's thesis, Dept. of Aeronautics & Astronautics, Massachusetts Institute of Technology, USA (& Guidance & Control Group, Draper, USA), June 2021

D.C. Reynolds, *Control-Structure Interaction Mitigation for NASA's Gateway*, Master's thesis, Dept. of Aeronautics & Astronautics, Massachusetts Institute of Technology, USA (& Guidance & Control Group, Draper, USA), June 2019

A. Svensson, *Model Predictive Control with Invariant Sets in Artificial Pancreas for Type 1 Diabetes Mellitus*, Master's thesis, Dept. of Electrical Engineering, Linköping University, Sweden (& Dept. of Chemical Engineering, University of California Santa Barbara, USA), June 2013

K. Okuda, *Control of systems subject to asynchronous output measurements*, Bachelor's thesis, Dept. of Mechanical Engineering, Osaka University, Japan, Mar. 2012

K. Nakano, *Optimal control of systems with asynchronous inputs*, Bachelor's thesis, Dept. of Mechanical Engineering, Osaka University, Japan, Mar. 2011

H. Komatsu, *Low-complexity MPC via move-blocking*, Bachelor's thesis, Dept. of Mechanical Engineering, Osaka University, Japan, Mar. 2010

### Theses examined

J.J. Lee, *Development of Artificial Pancreas Using Enhanced Control Algorithm and Insulin Delivery*, PhD thesis, Dept. of Chemical Engineering, University of California Santa Barbara, USA, June 2014

### Other mentees

G. Rebello. Summer research student, Harvard University, USA, 2016

### Certifications

**FAA certificated airman.** Private pilot: Airplane single engine land, glider. Tail-wheel aircraft endorsement. Solo aircraft: Cessna 150, 152, 172, Piper Cherokee, ACA Citabria, Aeronca Champ, PZL Bielsko SZD-50-3, Schleicher ASK-21, LET L-23, L-33, Schweizer SGS 2-33, 1-26E. Other: Piper Tomahawk, Robinson R22.

**PADI certified Rescue Diver.** Scuba experience in: USA, South Africa, Malaysia, Japan, Mexico, Philippines, Greece, Thailand, Indonesia, Honduras.

**Music:** Achieved grade 8 (highest) of "The Associated Board of the Royal Schools of Music" for oboe & tenor saxophone. One of numerous public performances set official world record for largest symphony orchestra; directed by Sir Simon Rattle.

### Patents

1. **R. Gondhalekar**, E. Dassau & F.J. Doyle III, *Velocity-weighting model predictive control of an artificial pancreas for type 1 diabetes applications*, US10,617,822. Also granted in CA
2. **R. Gondhalekar**, F.J. Doyle III & E. Dassau, *Moving-horizon state-initialization for control applications*, US9,984,773. Also granted in AU, CA, CN, JP
3. F.J. Doyle III, E. Dassau & **R. Gondhalekar**, *Daily periodic target-zone modulation in the model predictive control problem for artificial pancreas for type I diabetes applications*, US10,507,284. Also granted in AU, CA, CN, EP, JP, KR

## Publications

### Reviewed journal articles

1. C.E. Oestreich, R. Linares & **R. Gondhalekar**, *Autonomous Six-Degree-of-Freedom Spacecraft Docking with Rotating Targets via Reinforcement Learning*, AIAA J. Aerospace Information Systems, Aug. 2021. To appear
2. Z. Cao, **R. Gondhalekar**, E. Dassau & F.J. Doyle III, *Extremum Seeking Control for Personalized Zone Adaptation in Model Predictive Control for Type 1 Diabetes*, IEEE Trans. Biomedical Engineering, Vol. 65, No. 8, pp. 1859–1870, Aug. 2018
3. **R. Gondhalekar**, E. Dassau & F.J. Doyle III, *Velocity-weighting & velocity-penalty MPC of an artificial pancreas: Improved safety & performance*, Automatica, Vol. 91, pp. 105–117, May 2018
4. D.P. Howsmon, N. Baysal, B.A. Buckingham, G.P. Forlenza, T.T. Ly, D.M. Maahs, T. Marcal, L. Towers, E. Mauritzen, S. Deshpande, L.M. Huyett, J.E. Pinsker, **R. Gondhalekar**, F.J. Doyle III, E. Dassau, J. Hahn & B.W. Bequette, *Real-time Detection of Infusion Site Failures in a Closed-Loop Artificial Pancreas*, J. Diabetes Science & Technology, Vol. 12, No. 3, pp. 599–607, May 2018
5. D.A. Copp, **R. Gondhalekar** & J.P. Hespanha, *Simultaneous Model Predictive Control and Moving Horizon Estimation for Blood Glucose Regulation in Type 1 Diabetes*, Optimal Control Applications & Methods, Special Issue on Global & Robust Optimization of Dynamic Systems, Vol. 39, No. 2, pp. 904–918, Mar./Apr. 2018
6. P. Colmegna, R.S. Sánchez-Peña & **R. Gondhalekar**, *Linear Parameter-Varying Model to Design Control Laws for an Artificial Pancreas*, Biomedical Signal Processing & Control, Vol. 40, pp. 204–213, Feb. 2018
7. E. Dassau, J.E. Pinsker, Y.C. Kudva, S.A. Brown, **R. Gondhalekar**, C. Dalla Man, S. Patek, M. Schiavon, V. Dadlani, I. Dasanayake, M.M. Church, R.E. Carter, W.C. Bevier, L.M. Huyett, J. Hughes, S. Anderson, D. Lv, E. Schertz, E. Emory, S.K. McCrady-Spitzer, T. Jean, P.K. Bradley, L. Hinshaw, A.J. Laguna Sanz, A. Basu, B. Kovatchev, C. Cobelli & F.J. Doyle III, *12 Week 24/7 Ambulatory Artificial Pancreas with Weekly Adaptation of Insulin Delivery Settings: Effect on Hemoglobin A1c and Hypoglycemia*, Diabetes Care, Vol. 40, No. 12, pp. 1719–1726, Dec. 2017
8. G.P. Forlenza, S. Deshpande, T.T. Ly, D.P. Howsmon, F. Cameron, N. Baysal, E. Mauritzen, T. Marcal, L. Towers, B.W. Bequette, L.M. Huyett, J.E. Pinsker, **R. Gondhalekar**, F.J. Doyle III, D.M. Maahs, B.A. Buckingham & E. Dassau, *Application of Zone Model Predictive Control Artificial Pancreas during Extended Use of Infusion Set and Sensor: A Randomized Crossover-Controlled Home-Use Trial*, Diabetes Care, Vol. 40, No. 8, pp. 1096–1102, Aug. 2017

9. L.M. Huyett, T.T. Ly, G.P. Forlenza, S. Reuschel-DiVirgilio, L.H. Messer, R.P. Wadwa, **R. Gondhalekar**, F.J. Doyle III, J.E. Pinsker, D.M. Maahs, B.A. Buckingham & E. Dassau, *Outpatient Closed-Loop Control with Unannounced Moderate Exercise in Adolescents using Zone Model Predictive Control*, *Diabetes Technology & Therapeutics*, Vol. 19, No. 6, pp. 331–339, June 2017
10. J.B. Lee, E. Dassau, **R. Gondhalekar**, D.E. Seborg, J. Pinsker & F.J. Doyle III, *An Enhanced MPC (eMPC) Strategy for Automated Glucose Control*, *Industrial & Engineering Chemistry Research*, Vol. 55, No. 46, pp. 11857–11868, Oct. 2016
11. **R. Gondhalekar**, E. Dassau & F.J. Doyle III, *Periodic zone-MPC with asymmetric costs for outpatient-ready safety of an artificial pancreas to treat type 1 diabetes*, *Automatica*, Vol. 71, pp. 237–246, Sep. 2016
12. J.E. Pinsker, J.B. Lee, E. Dassau, D.E. Seborg, K. Castorino, **R. Gondhalekar**, W.C. Bevier, P.K. Bradley, H.C. Zisser & F.J. Doyle III, *A Randomized Crossover Comparison of Personalized MPC and PID Artificial Pancreas Control Algorithms*, *Diabetes Care*, Vol. 39, No. 7, pp. 1135–1142, July 2016
13. P. Colmegna, R.S. Sánchez-Peña, **R. Gondhalekar**, E. Dassau & F.J. Doyle III, *Switched LPV Glucose Control in Type 1 Diabetes*, *IEEE Trans. Biomedical Engineering*, Vol. 63, No. 6, pp. 1192–1200, June 2016
14. P. Colmegna, R.S. Sánchez-Peña, **R. Gondhalekar**, E. Dassau & F.J. Doyle III, *Reducing Glucose Variability Due to Meals and Post-prandial Exercise in T1DM Using Switched LPV Control: In Silico Studies*, *J. Diabetes Science & Technology*, Vol. 10, No. 3, pp. 744–753, May 2016
15. B. Khan, G. Valencia-Palomo, J.A. Rossiter, C.N. Jones & **R. Gondhalekar**, *Long horizon input parameterisations to enlarge the region of attraction of MPC*, *Optimal Control Applications & Methods*, Vol. 37, No. 1, pp. 139–153, Jan. 2016
16. E. Dassau, S.A. Brown, A. Basu, J.E. Pinsker, Y.C. Kudva, **R. Gondhalekar**, S. Patek, D. Lv, M. Schiavon, J.B. Lee, C. Dalla Man, L. Hinshaw, K. Castorino, A. Mallad, V. Dadlani, S.K. McCrady-Spitzer, M. McElwee-Malloy, C.A. Wakeman, W.C. Bevier, P.K. Bradley, B. Kovatchev, C. Cobelli, H.C. Zisser & F.J. Doyle III, *Adjustment of Open-Loop Settings to Improve Closed-Loop Results in Type 1 Diabetes: A Multicenter Randomized Trial*, *J. Clinical Endocrinology & Metabolism*, Vol. 100, No. 10, pp. 3878–3886, Oct. 2015
17. J. Hours, M.N. Zeilinger, **R. Gondhalekar** & C.N. Jones, *Constrained Spectrum Control*, *IEEE Trans. Automatic Control*, Vol. 60, No. 7, pp. 1969–1974, July 2015
18. P. Colmegna, R.S. Sánchez Peña, **R. Gondhalekar**, E. Dassau & F.J. Doyle III, *Reducing Risks in Type 1 Diabetes Using  $\mathcal{H}_\infty$  Control*, *IEEE Trans. Biomedical Engineering*, Vol. 61, No. 12, pp. 2939–2947, Dec. 2014
19. M. Korda, **R. Gondhalekar**, F. Oldewurtel & C.N. Jones, *Stochastic MPC*

- framework for controlling the average constraint violation*, IEEE Trans. Automatic Control, Vol. 59, No. 7, pp. 1706–1721, July 2014
20. **R. Gondhalekar**, E. Dassau, H.C. Zisser & F.J. Doyle III, *Periodic-Zone Model Predictive Control for Diurnal Closed-loop Operation of an Artificial Pancreas*, J. Diabetes Science & Technology, Vol. 7, No. 6, pp. 1446–1460, Nov. 2013
  21. **R. Gondhalekar**, F. Oldewurtel & C.N. Jones, *Least-restrictive robust periodic model predictive control applied to room temperature regulation*, Automatica, Vol. 49, No. 9, pp. 2760–2766, Sep. 2013
  22. **R. Gondhalekar** & C.N. Jones, *MPC of Constrained Discrete-Time Linear Periodic Systems – A Framework for Asynchronous Control: Strong Feasibility, Stability and Optimality via Periodic Invariance*, Automatica, Vol. 47, No. 2, pp. 326–333, Feb. 2011
  23. **R. Gondhalekar** & J. Imura, *Least-Restrictive Move-Blocking Model Predictive Control*, Automatica, Vol. 46, No. 7, pp. 1234–1240, July 2010
  24. **R. Gondhalekar**, J. Imura & K. Kashima, *Controlled invariant feasibility — A general approach to enforcing strong feasibility in MPC applied to move-blocking*, Automatica, Vol. 45, No. 12, pp. 2869–2875, Dec. 2009
  25. **R. Gondhalekar** & J. Imura, *Exact Cost Performance Analysis of Piecewise Affine Systems*, IEICE Trans. Fundamentals of Electronics, Communications & Computer Sciences, Special Section on Concurrent/Real-time & Hybrid Systems: Theory & Applications, Vol. E91–A, No. 11, pp. 3253–3260, Nov. 2008
  26. **R. Gondhalekar** & J. Imura, *Performance Measures in Model Predictive Control with Non-Linear Prediction Horizon Time-Discretization*, Trans. SICE, Vol. 43, No. 10, pp. 883–891, Oct. 2007

### Reviewed conference articles

1. C.E. Oestreich, R. Linares & **R. Gondhalekar**, *Autonomous Six-Degree-of-Freedom Spacecraft Docking Maneuvers via Reinforcement Learning*, AAS/AIAA Astrodynamics Specialist Conf., (virtual), Aug. 2020
2. G. Rebello, **R. Gondhalekar**, E. Dassau & F.J. Doyle III, *Mixed Linear-Quadratic Cost Function Design for MPC of an Artificial Pancreas — Improved Treatment & Safety for a Broad Range of Meal Sizes*, IFAC-PapersOnLine (IFAC World Congress, Toulouse, France), Vol. 50, No. 1, pp. 7724–7730, July 2017
3. Z. Cao, E. Dassau, **R. Gondhalekar** & F.J. Doyle III, *Extremum Seeking Control Based Zone Adaptation for Zone Model Predictive Control in Type 1 Diabetes*, IFAC-PapersOnLine (IFAC World Congress, Toulouse, France), Vol. 50, No. 1, pp. 15074–15079, July 2017
4. P. Colmegna, R.S. Sánchez-Peña & **R. Gondhalekar**, *Control-Oriented Linear Parameter-Varying Model for Glucose Control in Type 1 Diabetes*, IEEE Multi-Conf. Systems & Control, (Buenos Aires, Argentina), pp. 410–415, Sep. 2016

5. J.B. Lee, **R. Gondhalekar**, E. Dassau & F.J. Doyle III, *Shaping the MPC Cost Function for Superior Automated Glucose Control*, IFAC-PapersOnLine (IFAC Symp. Dynamics & Control of Process Systems, Trondheim, Norway), Vol. 49, No. 7, pp. 779–784, June 2016
6. **R. Gondhalekar**, E. Dassau & F.J. Doyle III, *Tackling problem nonlinearities & delays via asymmetric, state-dependent objective costs in MPC of an artificial pancreas*, IFAC-PapersOnLine (IFAC Conf. Nonlinear Model Predictive Control, Seville, Spain), Vol. 48, No. 23, pp. 154–159, Sep. 2015
7. **R. Gondhalekar**, E. Dassau & F.J. Doyle III, *Velocity-weighting to prevent controller-induced hypoglycemia in MPC of an artificial pancreas to treat T1DM*, AACC American Control Conf., (Chicago, IL, USA), pp. 1635–1640, July 2015
8. **R. Gondhalekar**, E. Dassau & F.J. Doyle III, *Moving-horizon-like state estimation via continuous glucose monitor feedback in MPC of an artificial pancreas for type 1 diabetes*, IEEE Conf. Decision & Control, (Los Angeles, CA, USA), pp. 310–315, Dec. 2014
9. J.J. Lee, **R. Gondhalekar** & F.J. Doyle III, *Design of an Artificial Pancreas using Zone Model Predictive Control with a Moving Horizon State Estimator*, IEEE Conf. Decision & Control, (Los Angeles, CA, USA), pp. 6975–6980, Dec. 2014
10. **R. Gondhalekar**, E. Dassau & F.J. Doyle III, *State Estimation with Sensor Recalibrations and Asynchronous Measurements for MPC of an Artificial Pancreas to Treat T1DM*, IFAC World Congress, (Cape Town, South Africa), pp. 224–230, Aug. 2014
11. **R. Gondhalekar**, E. Dassau & F.J. Doyle III, *MPC Design for Rapid Pump-Attenuation and Expedited Hyperglycemia Response to Treat T1DM with an Artificial Pancreas*, AACC American Control Conf., (Portland, OR, USA), pp. 4224–4230, June 2014
12. M. Kvasnica, **R. Gondhalekar** & M. Fikar, *A hierarchical design methodology for implementing safety-critical constrained controllers with guaranteed stability and failure detection*, IEEE Conf. Decision & Control, (Maui, HI, USA), pp. 1214–1219, Dec. 2012
13. M. Korda, **R. Gondhalekar**, F. Oldewurtel & C.N. Jones, *Stochastic Model Predictive Control: Controlling the Average Number of Constraint Violations*, IEEE Conf. Decision & Control, (Maui, HI, USA), pp. 4529–4536, Dec. 2012
14. M. Kvasnica, **R. Gondhalekar**, A. Szücs & M. Fikar, *Stabilizing Refinement of Low-Complexity MPC Controllers*, IFAC Conf. Nonlinear Model Predictive Control, (Noordwijkerhout, Netherlands), pp. 400–405, Aug. 2012
15. J.H. Hours, M.N. Zeilinger, **R. Gondhalekar** & C.N. Jones, *Spectrogram-MPC: Enforcing hard constraints on systems' output spectra*, AACC American Control Conf., (Montréal, Canada), pp. 2010–2017, June 2012



16. **R. Gondhalekar**, *Performance analysis of asynchronous model predictive control laws*, IEEE Conf. Decision & Control, (Orlando, FL, USA), pp. 1233–1238, Dec. 2011
17. **R. Gondhalekar**, C.N. Jones, T. Besselmann, J.H. Hours & M. Mercangöz, *Constrained spectrum control using MPC*, IEEE Conf. Decision & Control, (Orlando, FL, USA), pp. 1219–1226, Dec. 2011
18. M. Korda, **R. Gondhalekar**, J. Cigler & F. Oldewurtel, *Strongly Feasible Stochastic Model Predictive Control*, IEEE Conf. Decision & Control, (Orlando, FL, USA), pp. 1245–1251, Dec. 2011
19. G. Valencia-Palomo, J. Anthony Rossiter, C.N. Jones, **R. Gondhalekar** & B. Khan, *Alternative parameterisations for predictive control: how and why?*, AACC American Control Conf., (San Francisco, CA, USA), pp. 5175–5180, June 2011
20. **R. Gondhalekar**, F. Oldewurtel & C.N. Jones, *Least-Restrictive Robust MPC of Constrained Discrete-Time Periodic Affine Systems with Application to Building Climate Control*, IEEE Conf. Decision & Control, (Atlanta, GA, USA), pp. 5257–5263, Dec. 2010
21. G. Valencia-Palomo, M. Pelegrinis, J.A. Rossiter & **R. Gondhalekar**, *A move-blocking strategy to improve tracking in predictive control*, AACC American Control Conf., (Baltimore, MD, USA), pp. 6293–6298, June 2010
22. **R. Gondhalekar** & C.N. Jones, *Model Predictive Control of Linear Periodic Systems — A Unified Framework Including Control of Multirate and Multiplexed Systems*, IEEE Conf. Decision & Control, (Shanghai, China), pp. 6351–6358, Dec. 2009
23. F. Oldewurtel, **R. Gondhalekar**, C.N. Jones & M. Morari, *Blocking Parameterizations for Improving the Computational Tractability of Affine Disturbance Feedback Model Predictive Control Problems*, IEEE Conf. Decision & Control, (Shanghai, China), pp. 7381–7386, Dec. 2009
24. **R. Gondhalekar**, J. Imura & K. Kashima, *Rigorous determination of maximum controlled invariant feasible sets*, EUCA European Control Conf., (Budapest, Hungary), pp. 2821–2826, Aug. 2009
25. **R. Gondhalekar** & J. Imura, *Least restrictive move-blocking model predictive control*, IFAC World Congress, (Seoul, South Korea), pp. 11190–11195, July 2007
26. **R. Gondhalekar** & J. Imura, *Performance and stability analysis of discontinuous PWA systems by piecing together PWQ functions*, IFAC World Congress, (Seoul, South Korea), pp. 11530–11535, July 2007
27. **R. Gondhalekar** & J. Imura, *Recursive Feasibility Guarantees in Move-Blocking MPC*, IEEE Conf. Decision & Control, (New Orleans, LA, USA), pp. 1374–1379, Dec. 2007

28. **R. Gondhalekar** & J. Imura, *Strong Feasibility in Input-Move-Blocking Model Predictive Control*, IFAC Symp. Nonlinear Control Systems, (Pretoria, South Africa), pp. 940–945, Aug. 2007
29. **R. Gondhalekar** & J. Imura, *Performance Measures in Model Predictive Control with Non-Linear Prediction Horizon Time-Discretization*, EUCA European Control Conf., (Kos, Greece), pp. 467–474, July 2007
30. **R. Gondhalekar** & J. Imura, *Non-Linear Prediction Horizon Time-Discretization for Model Predictive Control of Linear Sampled-Data Systems*, IEEE Conf. Control Applications, (Munich, Germany), pp. 597–602, Oct. 2006

### Reviewed conference abstracts

1. G.P. Forlenza, S. Deshpande, T. Ly, D.P. Howsmon, F. Cameron, N. Baysal, L.S. Towers, T. Marcal, B.W. Bequette, **R. Gondhalekar**, F.J. Doyle III, D.M. Maahs, B. Buckingham & E. Dassau, *Application of Zone Model Predictive Control (Zone-MPC) Artificial Pancreas (AP) During Extreme Fault Detection Testing Conditions: A Randomized Crossover-Controlled Home-Use Trial*, Int. Conf. Advanced Technologies & Treatments for Diabetes, (Paris, France), Feb. 2017
2. D.P. Howsmon, N. Baysal, B.A. Buckingham, G.P. Forlenza, T.T. Ly, D.M. Maahs, T. Marcal, L. Towers, S. Deshpande, **R. Gondhalekar**, F.J. Doyle III, E. Dassau, J. Hahn & B.W. Bequette, *Real-time Detection of Losses in Infusion Set Actuation (LISAS) in a Closed-Loop Artificial Pancreas*, Int. Conf. Advanced Technologies & Treatments for Diabetes, (Paris, France), Feb. 2017
3. J.B. Lee, J.E. Pinsky, E. Dassau, D.E. Seborg, P.K. Bradley, **R. Gondhalekar**, W. Bevier, L. Huyett, H.C. Zisser & F.J. Doyle III, *Randomized Clinical Crossover Trial Comparing MPC and PID Control Algorithms for Artificial Pancreas*, ADA Scientific Sessions, (New Orleans, LA, USA), June 2016
4. L.M. Huyett, T.T. Ly, S. Reuschel-DiVirgilio, S.M. Clay, W. Bevier, **R. Gondhalekar**, E. Dassau, G.P. Forlenza, F.J. Doyle III, J.E. Pinsky, D.M. Maahs & B.A. Buckingham, *Outpatient Closed-Loop Control with Unannounced Moderate Exercise in Adolescents using Zone Model Predictive Control*, Int. Conf. Advanced Technologies & Treatments for Diabetes, (Milan, Italy), Feb. 2016
5. M.M. da Silva, A.J. Laguna-Sanz, **R. Gondhalekar**, E. Dassau & F.J. Doyle III, *Personalizing the Model Predictive Controller Aggressiveness for the Artificial Pancreas: A Trade off Analysis*, DTS Diabetes Technology Meeting, (Bethesda, MD, USA), Oct. 2015. (Best student abstract: 3<sup>rd</sup> prize)
6. E. Dassau, S.A. Brown, A. Basu, J.E. Pinsky, Y.C. Kudva, **R. Gondhalekar**, S.D. Patek, D. Lv, M. Schiavon, J.B. Lee, C. Dalla Man, B.P. Kovatchev, C. Cobelli, H.C. Zisser & F.J. Doyle III, *Multicenter Outpatient Randomized Crossover Trial of Zone-MPC Artificial Pancreas in Type 1 Diabetes: Effects of Initialization Strategies*, ADA Scientific Sessions, (Boston, MA, USA), June 2015

7. Y.C. Kudva, S.D. Patek, S. Brown, A. Basu, J. Pinsker, D. Kerr, J.B. Lee, **R. Gondhalekar**, D. Lv, M. Schiavon, C. Dalla Man, B.P. Kovatchev, C. Cobelli, H.C. Zisser, F.J. Doyle III & E. Dassau, *Blinded Comparison Of Expert Endocrinologists Adjustment Of Insulin Pump Settings vs. Novel Initialization Algorithm-based Adjustment Following A Data Gathering Period In A Multicenter Closed-loop RCT*, ADA Scientific Sessions, (Boston, MA, USA), June 2015
8. J.B. Lee, J.E. Pinsker, E. Dassau, D.E. Seborg, K. Castorino, **R. Gondhalekar**, W.C. Bevier, P.K. Bradley, H.C. Zisser & F.J. Doyle III, *Clinical Comparison of MPC and PID Artificial Pancreas Controllers: A Randomized Crossover Trial*, ADA Scientific Sessions, (Boston, MA, USA), June 2015
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