

# Dinesh Krishnamoorthy

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## Academic Appointments

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- 2022 - current**     **Eindhoven University of Technology (TU/e).**  
Assistant Professor (with tenure)  
*Department of Mechanical Engineering & Eindhoven Artificial Intelligence Systems Institute (EASIS)*
- 2021 - 2022**     **Harvard University.**  
Post-doctoral Researcher  
*Doyle Lab, Harvard John A. Paulson School of Engineering and Applied Sciences*
- 2019 - 2021**     **Norwegian University of Science and Technology (NTNU).**  
Post-doctoral Researcher

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## Education

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- 2016 - 2019**     **Norwegian University of Science and Technology (NTNU).**  
PhD in Chemical Engineering (Date of defense : 07.11.2019)  
*Doctoral Advisor : Prof. Sigurd Skogestad*  
▷ *Thesis title : Novel Approaches to Online Process Optimization under Uncertainty*
- 2011 - 2012**     **Imperial College London.**  
MSc Control Systems (Distinction)  
*Advisor : Prof. Eric C. Kerrigan*
- 2008 - 2011**     **University of Nottingham.**  
B.Engg (Hons.) Mechatronics Engineering - First class (*Top rank*)

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## Awards and Honours

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- 2023**     **EuroTech Future Award**  
*EuroTech Universities Alliance*  
▷ *Recognizing excellent early-career contributions to a more sustainable world.*
- 2022**     **Outstanding Reviewer**  
*IEEE Control Systems Letters Journal*
- 2020**     **Chorafas Outstanding PhD Thesis Award**  
*Dimitris N. Chorafas Foundation*  
▷ *Awarded for an outstanding PhD thesis across all scientific disciplines (one of 35 winners worldwide)*
- 2020**     **PhD Excellence Award on Computer-Aided Process Engineering (CAPE)**  
*European Federation of Chemical Engineers (EFCE)*  
▷ *Awarded for the best PhD thesis in the field of process systems engineering between 2017-2019*
- 2020**     **Best PhD Thesis Award**  
*Faculty of Natural Sciences, Norwegian University of Science and Technology (NTNU)*
- 2020**     **Post-doc Travel Award**  
*Processes*
- 2019**     **National Science Foundation (NSF) Young Researcher Travel Award**  
*Foundations on Process Analytics and Machine learning (FOPAM)*
- 2018**     **IFAC-ABB Best Student Paper Award**  
*IFAC Workshop on Automatic Control in Offshore Oil and Gas production*
- 2018**     **IFAC Young Author Award Finalist (top 3) & Keynote speaker**  
*IFAC Symposium on Advanced Control of Chemical Processes (ADCHEM)*
- 2011**     **Graduating Student Award for Outstanding Academic Excellence**  
*University of Nottingham, Malaysia Campus*
- 2008, 2009, & 2010**     **High Achiever's Scholarship (Three consecutive years)**  
*University of Nottingham, Malaysia Campus*

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## Secondary Academic Appointments

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2022 - current	Research Associate <i>Dutch Institute for Fundamental Energy Research (DIFFER), Eindhoven, Netherlands</i> ▷ <i>Energy and Systems Control Group</i>
2022 - 2023	Research Associate <i>Harvard University, Cambridge, MA, USA</i> ▷ <i>Doyle Lab, Harvard John A. Paulson School of Engineering and Applied Sciences</i>
2020	Visiting Research Scholar <i>Denmark Technical University (DTU), Kongens Lyngby, Denmark</i> ▷ <i>Department of Applied Mathematics and Computer Science, DTU</i>
2019	Visiting PhD Student <i>Carnegie Mellon University, Pittsburgh, PA, USA</i> ▷ <i>Biegler Lab, Department of Chemical Engineering</i>

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## Industrial Research Experience

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2020 - 2021	<b>Novo Nordisk, Device R&amp;D</b> , Denmark. Senior Data Scientist - Digital Health Technologies (part-time 20%)
2018 - 2019	<b>Equinor Research Center</b> , Norway. Senior Researcher (part-time 20%)
2012 - 2016	<b>Equinor Research Center</b> , Norway. Senior Researcher, Production Optimization

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## Research grants

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2024 - 2027	(PI) NWO Veni Early Career Talent Scheme - Dutch Research Council (€280000) <i>To each their own : Breaking the barriers in heterogeneous multi-agent decision-making</i> ▷ <i>Personal grant (Success rate = 11%)</i>
2023 - 2026	(PI) EUROfusion Engineering Grant - European Commission (€289000) <i>Efficient controller development for fusion tokamaks.</i> ▷ <i>Personal grant</i>
2023 - 2024	(co-PI) Open round COVID-19 contamination and spread - ZonMW (€285000) <i>Model Predictive Pandemic Control</i> ▷ <i>Collaborators : Mauro Salazar (TU/e), Jacco Wallinga (RIVM), Paul de Klaver(MMC)</i>
2020 - 2021	(co-PI) Peder Sather Grant - Peder Sather Center for Advanced Study at UC Berkeley (US\$24000) <i>Deep Learning-based Embedded Control Systems for Biomedical Applications.</i> ▷ <i>Collaborators : Ali Mesbah (UC Berkeley), Sigurd Skogestad (NTNU)</i>
2019 - 2022	(co-PI) IKTPLUSS Research Grant - Research Council of Norway (Total ~ €1.2 million ; To D.K. ~€500000) <i>Intelligent use of data to build optimization tools for cyber-physical systems</i> ▷ <i>Collaborators : Sigurd Skogestad (NTNU)</i>

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## Research Interests

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- Control and optimization of large-scale *cyber-physical system-of-systems*
- Learning-based control formulations
- Engineering applications to intelligent infrastructure systems

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## Journal papers

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- J1 **Krishnamoorthy, D.** An Improved Data Augmentation Scheme for Model Predictive Control Policy Approximation, *IEEE Control System Letters*, Vol. 7, p. 1867-1872.
- J2 Orrico, C. A., van Berkel, M., Bosman, T., Heemels, W.P.M.H., **Krishnamoorthy, D.**, 2023. Mixed-Integer MPC Strategies for Fueling and Density Control in Fusion Tokamaks, *IEEE Control System Letters*, Vol. 7, p. 1897 - 1902.

- J3 Bosman, T., Koechl, F., Ho, A., de Baar, M., **Krishnamoorthy, D.**, van Berkel, M., 2023. Integrated model control simulations of the electron density profile and the implications of using multiple discrete pellet injectors for control, *Nuclear Fusion*, (In-Press).
- J4 Mdoe, Z., **Krishnamoorthy, D.**, Jäschke, J. 2023. Stability Properties of the Adaptive Horizon Multi-Stage MPC. *Journal of Process Control* , Vol. 128, p. 103002.
- J5 **Krishnamoorthy, D.**, 2022. A Sensitivity-based Data Augmentation for Learning an Approximate Model Predictive Controller, *IEEE Transactions on Automatic Control*, Vol. 67(11), p.6090 - 6097.
- J6 **Krishnamoorthy, D.** and Doyle III, F. J., 2022. Safe and Personalized Meal Bolus Calculator for Type-1 Diabetes using Bayesian Optimization. *IEEE Transactions on Biomedical Engineering*, Vol. 70 (5), p. 1481 - 1492.
- J7 Dirza, R., Matias, J., Skogestad, S., and **Krishnamoorthy, D.** 2022. Experimental validation of distributed feedback-based RTO, *Control Engineering Practice*, Vol. 126, p. 105253.
- J8 **Krishnamoorthy, D.** and Doyle III, F. J., 2022. Safe Bayesian Optimization using Interior-Point Methods - Applied to Personalized Insulin Dose Guidance. *IEEE Control System Letters*, Vol. 6, p. 2834 - 2839.
- J9 **Krishnamoorthy, D.** and Doyle III, F. J., 2022. Model-free Real-time Optimization of Process Systems using Safe Bayesian Optimization. *AIChE Journal* , Vol. 69(4), p. e17993.
- J10 **Krishnamoorthy, D.** and Skogestad, S., 2022. Real-Time Optimization as a Feedback Control Problem - A Review. *Comput. & Chem. Eng.* Vol. 161, pp. 107723. *Invited paper in connection to the Excellence in CAPE PhD thesis award*
- J11 **Krishnamoorthy, D.**, Boiroux, D., Aradottir, T.B., Engell, S.E., and Jørgensen, J.B., 2021. A Model-free Approach to Automatic Dose Guidance in Long Acting Insulin Treatment of Type 2 Diabetes. *IEEE Control System Letters*, Vol.5(6), p.2030 - 2035.
- J12 **Krishnamoorthy, D.**, 2021. A Distributed Feedback-based Online Process Optimization Framework for Optimal Resource Sharing. *J. Proc. Control.* Vol. 97, p. 72-83.
- J13 **Krishnamoorthy, D.**, Biegler, L. and Jäschke, J., 2020. Adaptive Horizon Economic Nonlinear Model Predictive Control. *J. Proc. Control.* Vol. 92, p. 108-118.
- J14 **Krishnamoorthy, D.**, Skogestad, S., 2020 Systematic design of active constraint switching using selectors. *Comput. & Chem. Eng.* Vol. 143, p. 107106.
- J15 **Krishnamoorthy, D.**, Foss, B. and Skogestad, S., 2019. A Primal decomposition algorithm for distributed multistage scenario model predictive control. *J. Proc. Control.* Vol 81, p.162-171 - *ADCHEM special issue invited paper.*
- J16 **Krishnamoorthy, D.**, Fjalestad, K. and Skogestad, S., 2019. Optimal operation of offshore oil and gas production using simple control structures, *Control Engineering Practice*, Vol 91, p. 104107.
- J17 **Krishnamoorthy, D.**, Foss, B. Suwartadi, E., Jäschke, J. and Skogestad, S., 2018. Improving Scenario Decomposition for Multistage MPC using a Sensitivity-based Path-following Algorithm, *IEEE Control System Letters*, Vol 2(4), p.581-586
- J18 **Krishnamoorthy, D.**, and Skogestad, S., 2019. Online process optimization with changes in active constraint sets using simple feedback control structures, *Ind. Eng. Chem. Res.* Vol. 58 (30), p. 13555-13567
- J19 Jahanshahi, E., **Krishnamoorthy, D.**, Coda, A., Foss, B. and Skogestad, S., 2019. Plantwide control of an oil production network, *Comput. & Chem. Eng.*, Vol. 136, p. 106765.
- J20 **Krishnamoorthy, D.**, Jahanshahi, E. and Skogestad, S., 2019. A feedback RTO strategy using Transient Measurements , *Ind. Eng. Chem. Res.* Vol 58 (1), p. 207-216.
- J21 Straus, J.<sup>†</sup>, **Krishnamoorthy, D.**<sup>†</sup> and Skogestad, S., 2019. Combining self-optimizing control and extremum seeking control - Applied to ammonia reactor case study, *J. Proc. Control.* Vol 78, p. 78-87. (<sup>†</sup>equal contribution)
- J22 **Krishnamoorthy, D.**, Foss, B. and Skogestad, S., 2018. Steady-State Real-time Optimization using Transient Measurements. *Comput. & Chem. Eng.*, Vol 115, p. 34-45.
- J23 **Krishnamoorthy, D.**, Foss, B. and Skogestad, S., 2016. Real-Time Optimization under Uncertainty Applied to a Gas Lifted Well Network. *Processes*, Vol 4(4), p. 52.

## Peer-reviewed conference papers

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- C1 Van der Horst, A., Meere, B., **Krishnamoorthy, D.**, Bakker, S., van de Vrande, B., Stoutjesdijk, H., Alonso, M., Torta, E., 2024. A Bayesian optimization framework for the automatic tuning of MPC-based shared controllers. *Proceedings of the 2024 IEEE International Conference on Robotics and Automation (ICRA)*, Yokohama, Japan.
- C2 **Krishnamoorthy, D.** An Improved Data Augmentation Scheme for Model Predictive Control Policy Approximation, *Proceedings of the 2023 IEEE Conference on Decision and Control*, Singapore.
- C3 Orrico, C. A., van Berkel, M., Bosman, T., Heemels, W.P.M.H., **Krishnamoorthy, D.**, 2023. Mixed-Integer MPC Strategies for Fueling and Density Control in Fusion Tokamaks, *Proceedings of the 2023 IEEE Conference on Decision and Control*, Singapore (In-Press).
- C4 Palacio, P.C., Maestre, J.M., **Krishnamoorthy, D.**, and Camacho, E.F. ALADIN-based Distributed Model Predictive Control with dynamic partitioning : An application to Solar Parabolic Trough Plants, *Proceedings of the 2023 IEEE Conference on Decision and Control*, Singapore (In-Press).
- C5 **Krishnamoorthy, D.**, 2023. On Tuning Parameterized Control Policies Online for Safety-Critical Systems – Applied to Biomedical Systems, *IFAC World Congress*, Yokohama, Japan (In-Press).
- C6 **Krishnamoorthy, D.** and Paulson, J., 2023. Multi-agent Black-box Optimization using a Bayesian Approach to Alternating Direction Method of Multipliers, *IFAC World Congress*, Yokohama, Japan (In-Press).
- C7 **Krishnamoorthy, D.**, 2023. Optimizing Surplus Heat Recovery using Fast Fourier Transform-based Extremum Seeking Control, *IFAC World Congress*, Yokohama, Japan (In-Press).
- C8 Aas, V., Dirza, R., **Krishnamoorthy, D.**, Skogestad, S., 2023. A comparative study of distributed feedback-optimizing control strategies, *Computer-aided Chemical Engineering*, Vol. 52, p.613-618.
- C9 **Krishnamoorthy, D.** and Kungurtsev, V., 2022. A Sensitivity-assisted Alternating Directions Method of Multipliers for Distributed Optimization, *Proceedings of the 2022 IEEE Conference on Decision and Control*, Cancun, Mexico.
- C10 **Krishnamoorthy, D.** and Doyle III, F. J., 2022. Safe Bayesian Optimization using Interior-Point Methods - Applied to Personalized Insulin Dose Guidance. *Proceedings of the 2022 IEEE Conference on Decision and Control*, Cancun, Mexico.
- C11 **Krishnamoorthy, D.** and Doyle III, F. J., 2022. Personalized Dose Guidance using Safe Bayesian Optimization. *2022 Machine Learning for Health (ML4H)*, New Orleans, USA.
- C12 Dirza, R., Rizwan, M., Skogestad, S. and **Krishnamoorthy, D.**, 2022. Real-Time Optimal Resource Allocation Using Online Primal Decomposition, *IFAC-PapersOnLine* Vol. 55 (21), p.31-36.
- C13 Bernardino, L.F., **Krishnamoorthy, D.** and Skogestad, S., 2022. Optimal Operation of Heat Exchanger Networks with Changing Active Constraint Regions, *Computer Aided Chemical Engineering* Vol. 49, p.421-426.
- C14 Dirza, R., **Krishnamoorthy, D.** and Skogestad, S., 2022. Primal-dual Feedback-optimizing Control with Direct Constraint Control, *Computer Aided Chemical Engineering* Vol. 49, 1153-1158.
- C15 Bernardino, L.F., **Krishnamoorthy, D.** and Skogestad, S., 2022. Comparison of Simple Feedback Control Structures for Constrained Optimal Operation. *IFAC-PapersOnLine* Vol. 55 (7), p.883-888
- C16 **Krishnamoorthy, D.**, Dimitri Boiroux, Tinna Björk Aradottir, Sarah Ellinor Engell and John Bagterp Jørgensen, 2021. A Model-free Approach to Automatic Dose Guidance in Long Acting Insulin Treatment of Type 2 Diabetes. *Proceedings of the 2021 American Control Conference*, New Orleans, USA.
- C17 **Krishnamoorthy, D.**, Mesbah, A., Paulson, J., 2021. An Adaptive Correction Scheme for Offset-Free Asymptotic Performance in Deep Learning-based Economic MPC, *IFAC-PapersOnLine* Vol. 54 (3), p. 584-589 (IFAC ADCHEM 2021).
- C18 Dirza, R., Skogestad, S., **Krishnamoorthy, D.**, 2021. Optimal Resource Allocation using Distributed Feedback Real-time Optimization. *IFAC-PapersOnLine*, Vol. 54 (3), p.706-711 (IFAC ADCHEM 2021) [Keynote paper presented by D.K.](#)
- C19 Mdoe, Z., **Krishnamoorthy, D.**, and Jäschke, J., 2021. Adaptive Horizon Multistage Nonlinear Model Predictive Control. *Proceedings of the 2021 American Control Conference*, p. 2088-2093.

- C20 Prakash, S., **Krishnamoorthy, D.**, and Jäschke, J., Multi-scenario Design Optimization using ADMM of a Thermal Energy Storage system. *Computer aided chemical engineering (ESCAPE 31)*, Vol. 50, p. 739-745.
- C21 **Krishnamoorthy, D.**, Valli, C. and Skogestad, S., 2020. Real-time Optimal Resource Allocation in an Industrial Symbiotic Network using Transient Measurements. *Proceedings of the 2020 American Control Conference*, p. 3541-3546, Denver, USA.
- C22 **Krishnamoorthy, D.** and Skogestad, S., 2020. Linear Combination of Gradients as Optimal Controlled Variables, *Computer aided chemical engineering*, Vol. 48, p. 1237-1242 (ESCAPE 30).
- C23 **Krishnamoorthy, D.**, Jäschke, J. and Skogestad, S., 2019. Multistage Model Predictive Control with On-line Scenario Tree Update using Recursive Bayesian Weighting, *Proceedings of the 2019 European Control Conference*, p.1443 - 1448, Naples, Italy.
- C24 **Krishnamoorthy, D.**, Ryu, J. and Skogestad, S., 2019. Dynamic extremum seeking control applied to a gas lifted well network, *IFAC-PapersOnLine*, 52(1), 802-807 (IFAC DYCOPS 2019)
- C25 Thombre, M., **Krishnamoorthy, D.**, and Jäschke, J., 2019. Data-driven Multistage Model Predictive Control of a Thermal Storage System with Time-Varying Uncertainty, *IFAC-PapersOnLine*, 52(1), 461-467 (IFAC DYCOPS 2019)
- C26 Delou, P., Azevedo, J., **Krishnamoorthy, D.**, de Souza Jr, M. and Secchi, A., 2019. Model Predictive Control with Reconfiguration Strategy applied to an Electric Submersible Pump in a subsea environment, *IFAC-PapersOnLine*, 52(1), 784-789 (IFAC DYCOPS-CAB, Florianopolis, Brazil)
- C27 **Krishnamoorthy, D.**, Jahanshahi, E. and Skogestad, S., 2019. A feedback Real time optimization strategy applied to an evaporator process, PSE Asia, Bangkok, Thailand (*In-Press*)
- C28 **Krishnamoorthy, D.**, Foss, B. Suwartadi, E., Jäschke, J. and Skogestad, S., 2018. Improving Scenario Decomposition for Multistage MPC using a Sensitivity-based Path-following Algorithm, *Proceedings of the 2018 IEEE Conference on Decision and Control*, Miami beach, USA.
- C29 **Krishnamoorthy, D.**, Foss, B. and Skogestad, S., 2018. A distributed algorithm for scenario-based model predictive control using primal decomposition *IFAC-PapersOnLine* Vol. 51 (18), pp. 351-356 (IFAC ADCHEM, Shenyang, China) - *Keynote paper presented by D.K., and IFAC Young Author Award finalist*
- C30 **Krishnamoorthy, D.**, Thombre, M., Jäschke, J. and Skogestad, S., 2018. Data-driven scenario selection for multistage robust model predictive control, *IFAC-PapersOnLine*, 51(20), pp.462-468 (IFAC NMPC, Madison, Wisconsin).
- C31 **Krishnamoorthy, D.**, Jahanshahi, E. and Skogestad, S., 2018. Gas-lift Optimization by Controlling Marginal Gas-Oil Ratio using Transient Measurements, *IFAC-PapersOnLine*, 51(8), pp.19-24 (IFAC OOGP, Esbjerg, Denmark) - *IFAC-ABB Best Student Paper Award*.
- C32 Suwartadi, E., **Krishnamoorthy, D.** and Jäschke, J., 2018. Fast Economic Model Predictive Control for a Gas Lifted Well Network, *IFAC-PapersOnLine*, 51(8), pp.25-30 (IFAC OOGP, Esbjerg, Denmark).
- C33 Backi, C. J., **Krishnamoorthy, D.** and Skogestad, S., 2018. Slug handling with a virtual harp - based on nonlinear predictive control for a gravity separator, *IFAC-PapersOnLine*, 51(8), pp.120-125 (IFAC OOGP, Esbjerg, Denmark).
- C34 **Krishnamoorthy, D.**, Aguiar, M. A. M., Foss, B. and Skogestad, S., 2018. A Distributed Optimization Strategy for Large scale Oil and Gas Production Systems, *Proceedings of the 2018 IEEE Conference on Control Technology and Applications (CCTA)*, Copenhagen, Denmark.
- C35 Backi, C. J., **Krishnamoorthy, D.**, Verheyleweghen, A. and Skogestad, S., 2018. Combined nonlinear moving horizon estimation and model predictive control applied to a compressor for active surge control, *Proceedings of the 2018 IEEE Conference on Control Technology and Applications (CCTA)*, Copenhagen, Denmark.
- C36 Bonnowitz, H., Straus, J., **Krishnamoorthy, D.**, and Skogestad, S., 2018. Control of the Steady-State Gradient of an Ammonia Reactor using Transient Measurements, *Computer aided chemical engineering*, Vol.43, p.1111-1116 (ESCAPE 28, Graz)
- C37 Reyes-Lúa, A., Zotica, C., Das, T., **Krishnamoorthy, D.**, and Skogestad, S., 2018. Changing between Active Constraint Regions for Optimal Operation : Classical Advanced Control versus Model Predictive Control, *Computer aided chemical engineering*, Vol.43, p.1015-1020 (ESCAPE 28, Graz) - *Keynote paper presented by S.S.*

- C38 **Krishnamoorthy, D.**, Foss, B. and Skogestad, S., 2017. Gaslift optimization under uncertainty. *Computer Aided Chemical Engineering*, vol.40, pg 1753-1758 (ESCAPE 27, Barcelona).
- C39 **Krishnamoorthy, D.**, Pavlov, A. and Li, Q., 2016. Robust Extremum Seeking Control with application to Gas Lifted Oil Wells. *IFAC-PapersOnLine*, 49(13), pp.205-210 (IFAC ALCOSP).
- C40 **Krishnamoorthy, D.**, Bergheim, E.M., Pavlov, A., Fredriksen, M. and Fjalestad, K., 2016. Modelling and Robustness Analysis of Model Predictive Control for Electrical Submersible Pump Lifted Heavy Oil Wells. *IFAC-PapersOnLine*, 49(7), pp.544-549 (IFAC DYCOPS, Trondheim, Norway).
- C41 Pavlov, A., **Krishnamoorthy, D.**, Fjalestad, K., Aske, E. and Fredriksen, M., 2014, October. Modelling and model predictive control of oil wells with electric submersible pumps. *Proceedings of the 2014 IEEE Conference on Control Applications* p. 586-592.

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### Selected presentations and invited talks

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- P1 **Krishnamoorthy, D.**, Bayesian Optimization for safety critical systems - Applications to biomedical systems and chemical process systems. Seminar at DTU Compute, Denmark, 5 July 2023.
- P2 **Krishnamoorthy, D.**, To each their own - Decision-making in a connected world. Seminar at Automatic Control Laboratory at EPFL, Lausanne, 24 April 2023.
- P3 **Krishnamoorthy, D.**, Recent advances in fast distributed optimization. OPAC Seminar series, Department of Mathematics and Computer Science, TU Eindhoven, 30 March 2023.
- P4 **Krishnamoorthy, D.**, The role of parametric sensitivities at the interface of control, learning, and optimization, Seminar at Electrical and Systems Engineering at UPenn, 29 April 2022.
- P5 **Krishnamoorthy, D.**, Efficient Distributed Real time Optimization Algorithms for Large-scale Process, Process Control, Optimization, and Data Analytics Young Researcher Online Seminar Series, 27 Apr 2022. systems.
- P6 **Krishnamoorthy, D.**, Efficient Distributed Real time Optimization Algorithms for Large-scale Process, Seminar at McMaster University, 04 May 2022.
- P7 **Krishnamoorthy, D.**, Open Challenges in the Optimization of Industrial Symbiotic Systems, Future Innovations in Process Systems Engineering (FIPSE 5), Crete, Greece, 17 - 19 Jul 2021.
- P8 **Krishnamoorthy, D.**, Distributed Real-time Optimization for large-scale plants - Towards sustainable manufacturing, Technical University of Denmark Webinar, 18 Dec 2020. (*Invited talk*)
- P9 **Krishnamoorthy, D.**, On the interplay between optimization and machine learning, and the role of sensitivities, Data Analytics and Intelligent Systems Lab, University of British Columbia, 9 Nov 2020. (*Invited talk*)
- P10 **Krishnamoorthy, D.** A Brief Overview of online process optimization approaches, Excellence in CAPE PhD Award Lecture, 30th European symposium on Computer Aided Process Engineering (ESCAPE), 31 Aug 2020 (*Award lecture*)
- P11 **Krishnamoorthy, D.**, Achieving optimal operation without solving optimization problems, Virtual Seminar on Systems and Control at the Federal University of Rio de Janeiro, 20 Jul 2020 (*Invited talk*)
- P12 **Krishnamoorthy, D.** Online process optimization approaches under uncertainty, DTU Compute and DTU Prosys, Kgs. Lyngby, Denmark (23 Jan 2020) (*Invited talk*)
- P13 **Krishnamoorthy, D.**, and Skogestad, S., 2019. Real-time optimization strategies using surrogate optimizers, Foundation on Process Analytics and Machine Learning (FOPAM), Raleigh, NC - *NSF Young Researcher Travel Award*
- P14 Skogestad, S. and **Krishnamoorthy, D.**, An Overview and Evaluation of Approaches for Online Process Optimization, PSE Asia, (*Invited opening plenary talk given by S. Skogestad*), 16 -19 Jan 2019.
- P15 **Krishnamoorthy, D.**, Efficient production optimization strategies using transient measurements, VII Brazil-Norway Production Optimization workshop, Rio De Jenerio, May 2018. (*Invited talk*)
- P16 **Krishnamoorthy, D.** Scenario-based Model Predictive Control, Guest Lecture, Federal University of Santa Catarina, Florianopolis, May 2017. (*Invited talk*)
- P17 **Krishnamoorthy, D.**, Foss, B. and Skogestad, S. Real-Time Optimization under Uncertainty Applied to a Gas Lifted Well Network, VI Brazil-Norway Production Optimization workshop, Rio De Jenerio, April 2017. (*Invited talk*)

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## Patents

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- I1 **Krishnamoorthy, D.**, Ryde, T.E., Aradottir, T.B., Boiroux, D., and Bengtsson, H., System and method for personalized insulin titration, (WO2023144364A1)
- I2 Aske, E., **Krishnamoorthy, D.**, Fjalestad, K., Pavlov, A. and Fredriksen, M. 2014, Well Control system (WO2015070913A1, CA2930653A1, US20160290077A1, GB2535090B)
- I3 **Krishnamoorthy, D.** and Fjalestad, K. 2017, Estimating flow rate at a pump (WO2017061873A1, CA3001234A1, GB2543048A)

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## Media and Outreach

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- M1 Article on *Universitets Avis* interviewing me in connection to my PhD Excellence Award. (in Norwegian)  
<https://tinyurl.com/8epwvx7>
- M2 Report on Age-dependent Epidemiological model of COVID-19 to assist policy makers in Norway - Communicated to the Director-General of the Norwegian Institute of Public Health (NIPH) on 23 March 2020 (National Lockdown announced on 12 March 2020).
- M3 Contribution to the biography on Prof. Jens G. Balchen titled, *Alltid Rabi* by Gard Paulsen (In Norwegian)

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## Professional training and certification

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- 2023** University Teaching Qualification (UTQ) Certificate  
▷ *TU Eindhoven*
- 2023** Academic Leadership Skills for Assistant Professors  
▷ *TU Eindhoven*
- 2020** PhD Supervision Workshop  
▷ *NTNU*

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## Teaching activities

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- 2023 –** Lecturer and course responsible, 4SC010 Control and Operation of Tokamaks  
(Autumn) ▷ *Department Of Mechanical Engineering, TU Eindhoven* ▷ *Graduate level*
- 2022 –** Lecturer, 4DM20 Engineering Optimization  
(Autumn) ▷ *Department Of Mechanical Engineering, TU Eindhoven* ▷ *Graduate level*
- 2021** Lecturer and course responsible, KP3100 Chemical Engineering  
(Autumn) ▷ *Department Of Chemical Engineering, NTNU* ▷ *Undergraduate level*
- 2020** Lecturer and course responsible, KP3100 Chemical Engineering  
(Autumn) ▷ *Department Of Chemical Engineering, NTNU* ▷ *Undergraduate level*
- 2020** Lecturer, KP8115 Advanced Process Control  
(Autumn) ▷ *Department Of Chemical Engineering, NTNU* ▷ *Graduate level*
- 2019** Lecturer, KP8115 Advanced Process Control  
(Autumn) ▷ *Department Of Chemical Engineering, NTNU* ▷ *Graduate level*
- 2019** Lecturer and course coordinator, Numerical Optimal Control  
(Spring) ▷ *Short Intensive graduate level course in Federal University of Rio de Janeiro (UFRJ-COPPE)* ▷ *Graduate level*
- 2018** Teaching Assistant, KP8115 Advanced Process Control  
(Autumn) ▷ *Department Of Chemical Engineering, NTNU* ▷ *Graduate level*

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## Supervision of doctoral and masters students

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- 2022 - Supervisor for PhD Candidate Chris Oricco, TU Eindhoven.  
▷ *MPC Strategies for Real Time Control of Nuclear Fusion Tokamaks*
- 2023 - Supervisor for PhD Candidate Hari Prasad, TU Eindhoven.  
▷ *Safe and Automated Tuning of Control Policies for Fusion Tokamaks*
- 2023 - Co-Supervisor for PhD Candidate Lennard Ceelen, TU Eindhoven.  
▷ *Burn Control in Nuclear Fusion Tokamaks (with Dr. M. van Berkel)*
- 2019 - Co-supervisor for PhD Candidate Risvan Dirza, NTNU.  
▷ *Distributed feedback optimization strategies for large-scale process systems (with Prof. S. Skogestad)*
- 2019 - Co-supervisor for PhD Candidate Lucas Ferreira Bernardino, NTNU.  
▷ *Optimal operation and advanced control of process systems using decomposition and simple elements (with Prof. S. Skogestad)*
- 2017 - Co-supervised 12 Master Thesis students (3 from TU Eindhoven, 3 from NTNU, 3 from Federal University of Rio de Janeiro, 1 from TU Berlin and 1 from Politecnico di Milano)
- 2015 - 2016 Co-supervised 2 internship trainees while I was working as senior researcher at Statoil.

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## Editorial services

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- 2024 Associate Editor, IFAC Conference on Nonlinear Model Predictive Control (NMPC), Kyoto, Japan
- 2024 Associate Editor, European Control Conference (ECC), Stockholm, Sweden
- 2023 Associate Editor (TC2.4), IFAC World Congress, Yokohama, Japan
- 2023 Associate Editor, European Control Conference (ECC), Bucharest, Romania
- 2022 International Program Committee, IEEE Symposium on Advanced Control of Industrial Processes (AdCONIP), Vancouver, Canada
- 2018 International Program Committee, 7th Brazil-Norway Production Optimization workshop, Rio De Janeiro, Brazil
- 2017 Associate Editor, 1st IEEE Conference on Control Technology and Applications (IEEE CCTA), Hawaii, USA
- 2019 - Reviewer of several Journal articles  
▷ *Journal of Process Control* ▷ *Control Engineering practice* ▷ *Computers and Chemical Engineering*  
▷ *IEEE Transactions on Automatic Control* ▷ *IEEE Control Systems Letters* ▷ *IEEE Access* ▷ *AIChE Journal* ▷ *Industrial and Engineering Chemistry Research* ▷ *Brazilian Journal of Chemical Engineering*  
▷ *Optimal Control Applications and Methods* ▷ *Optimization and Engineering*
- 2014 - Reviewer of several IEEE CSS and IFAC conference papers

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## Professional membership

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- IEEE** Senior Member  
*Institute of Electrical and Electronic Engineers*  
▷ *IEEE Control Systems Society*
- IFAC** Affiliate Member  
*International Federation of Automatic Control*  
▷ *TC 2.4 - Optimal Control.* ▷ *TC 6.1 - Process Control.*
- AIChE** Senior Member  
*American Institute of Chemical Engineers*  
▷ *Computing and Systems Technology (CAST10)*

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## Referee Details

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