Evren Mert Turan

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🎓 [Google scholar](#)

Education

2020 – 2024	**PhD in Chemical Engineering** Norwegian University of Science and Technology (NTNU), supervised by Prof. Johannes Jäschke. Thesis title: *Advances in Optimisation and Machine Learning for Process Systems Engineering.*
2019 – 2020	**Master of Science in Chemical Engineering** with Distinction. University of Cape Town (UCT), supervised by Prof. Klaus Möller Thesis title: *Process Analysis of the Homogeneous Direct Conversion of Methane to Methanol.*
2015 – 2018	**Bachelor of Science in Chemical Engineering** with first class honours. University of Cape Town (UCT).

Awards and Achievements

2022	**Keynote presentation** at the 13th IFAC Symposium on Dynamics and Control of Process Systems, including Biosystems (DYCOPS 2022)
	Research exchange funding from the Brazilian-Norwegian Subsea Operations Consurtium (BN-SOC) Intpart2 mobility grant.
2019–2020	**Postgraduate Academic Merit Bursary**, Council for Scientific and Industrial Research (CSIR)
2019	**UCT Plus Gold Award for Elected Leadership Role**, Fencing executive commitee, UCT
2018	**First class honours in BSc Chemical Engineering**, Engineering & the Built Enviroment, UCT
2015–2018	**Undergraduate Academic Merit Bursary**, Council for Scientific and Industrial Research (CSIR)
2015–2017	**Dean's Merit List**, Engineering & the Built Enviroment, UCT >75% Grade Point Average (GPA), including

Experience

Teaching experience

2023	Presentation and preparation of the workshop "Strategies for efficient and robust model predictive control" at the 24th International Conference on Process Control in Slovakia, with Professor Johannes Jäschke.
2022–2023	Involved in the curriculum development and running of TKP4135: Chemical Process Systems Engineering at NTNU. Involved in the start up of this new course, including the preparation of lecture and exercise material. Lectured some classes, and participated/organised tutorial (exercise) sessions throughout the course.
2021	Ran tutorial (exercise) sessions for TKP4106: Process Modelling at NTNU.
2019	Teaching Assistant for Numerical Simulation for Chemical Engineers, CHE3070S at UCT.
	Tutor for Statistics for Engineers, STA1008S/F at UCT

Experience (continued)

Co-supervision of master students

2023	Yoonsik Oh with Prof. Jäschke
	Thesis: Self-Optimizing Control of an Offshore Blue Hydrogen Plant.
2022	Maren Sofie Lia with Prof. Jäschke
	Thesis: Real Time Optimization in Experimental Lab Rig via Output Modifier Adaptation using Gaussian Processes
2021	Amirreza Zamani Meighani with Prof. Jäschke
	Thesis: Real-Time Optimization under Uncertainty with Julia

Co-supervision of 4th year students

2022	Yoonsik Oh with Prof. Jäschke
	Thesis: Self-Optimizing Control of an Offshore Blue Hydrogen Plant
2021	Frida Bjørnstad Konow with Prof. Jäschke
	Thesis: Scientific Machine Learning: Tuning out the Noise
2019	Chinmaya Alur with Prof. Möller
	Thesis: The effect of surfaces on the direct methane to methanol reaction

Miscellaneous

2023	Organisation of the 23rd Nordic Process Control Workshop
2017	(2 months) Research internship at the Council for Scientific Research: Advanced Mathematical Modeling Unit, South Africa.

Languages and Skills

English	Home language
Afrikaans	Proficient
Norwegian, Turkish	Basic competency
Document processing	LaTeX, Microsoft Office
Programming	Julia, Python, (and experience with MATLAB, Scilab, FORTRAN)
Leadership	Chair of UCT Fencing (2020), Committee member of UCT Fencing (2019-2020), Member of UCT Student Parliament, Sports Sub Council (2020), Committee member of Cape Town Fencing (city level sports organisation)

References

Professor Johannes Jäschke
PhD Supervisor.
Department of Chemical Engineering
Norwegian University of Science and Technology
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Professor Sigurd Skogestad
Collaborator & Former head of research group.
Department of Chemical Engineering
Norwegian University of Science and Technology
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Professor Klaus Möller
MSc Supervisor.
Department of Chemical Engineering
University of Cape Town
South Africa
✉ klaus.moller@uct.ac.za

Assistant Professor Rohit Kannan
Collaborator.
Grado Department of Industrial and Systems Engineering
Virginia Tech
USA
✉ rohitkannan@vt.edu

Research Publications

Journal Articles

4. **E. M. Turan** and J. Jäschke, "Closed-loop optimisation of neural networks for the design of feedback policies under uncertainty," *Journal of Process Control*, vol. 133, pp. 103–144, Jan. 2024, ISSN: 09591524. 🔗 DOI: 10.1016/j.jprocont.2023.103144.

3. **E. M. Turan** and J. Jaschke, "Multiple Shooting for Training Neural Differential Equations on Time Series," *IEEE Control Systems Letters*, vol. 6, pp. 1897–1902, 2022, ISSN: 24751456. 🔗 DOI: 10.1109/LCSYS.2021.3135835.

2. **E. M. Turan**, E. van Steen, and K. P. Möller, "Comparison of mechanisms for the direct, gas phase, partial oxidation of methane to methanol," *Chemical Engineering Science*, vol. 241, p. 116 718, Sep. 2021, ISSN: 00092509. 🔗 DOI: 10.1016/j.ces.2021.116718.

1. **E. M. Turan**, S. A. Stein, R. Maharaj, and K. P. Möller, "A flow sheet for the conversion of lunar regolith using fluorine gas," *Advances in Space Research*, vol. 65, no. 7, pp. 1852–1862, Apr. 2020, ISSN: 02731177. 🔗 DOI: 10.1016/j.asr.2020.01.014.

Journal Articles – in preparation

4. **E. M. Turan** and J. Jaschke, " Learning output-feedback control policies: A distillation case study," *In review.*, 2024.

3. **E. M. Turan**, J. Jaschke, and R. Kannan, "Bounding-Focused Discretization Methods for the Global Optimization of Nonconvex Semi-Infinite Programs," *In review, arXiv preprint, arXiv:2303.00219*, 2024.

2. **E. M. Turan**, Z. Mdoe, and J. Jaschke, "Learning convex terminal costs for complexity reduction," *In review, arXiv preprint, arXiv:2312.02650*, 2023.

1. **E. M. Turan**, S. Skogestad, and J. Jaschke, "Generalised and Systematic Inventory Control with Optimal Use of Intermediate Storage," *In preparation.*, 2023.

Conference procedings (peer reviewed)

6. **E. M. Turan**, S. Skogestad, and J. Jaschke, "Model Predictive Control for Bottleneck Isolation with Unmeasured Faults," *Accepted for presentation at the 12th IFAC Symposium on Advanced Control of Chemical Processes (ADCHEM)*, 2024.

5. **E. M. Turan** and J. Jaschke, "A simple two-parameter steady-state detection algorithm : Concept and experimental validation," in *33rd European Symposium on Computer Aided Process Engineering*, Elsevier B.V., 2023, ISBN: 9780443152740. 🔗 DOI: 10.1016/B978-0-443-15274-0.50280-8.

4. **E. M. Turan**, S. Lia, J. Matias, and J. Jäschke, "Experimental validation of modifier adaptation and gaussian processes for real time optimisation," *IFAC-PapersOnLine*, vol. 56, no. 2, pp. 1394–1399, 2023.

3. **E. M. Turan** and J. Jäschke, "Designing neural network control policies under parametric uncertainty: A Koopman operator approach," *IFAC-PapersOnLine*, vol. 55, no. 7, pp. 392–399, 2022, ISSN: 24058963. 🔗 DOI: 10.1016/j.ifacol.2022.07.475.

2. **E. M. Turan**, R. Kannan, and J. Jäschke, "Design of PID controllers using semi-infinite programming," *Computer Aided Chemical Engineering*, vol. 49, no. 1958, pp. 439–444, 2022, ISSN: 15707946. 🔗 DOI: 10.1016/B978-0-323-85159-6.50073-7.

1. **E. M. Turan** and J. Jaschke, "Classification of undesirable events in oil well operation," in *2021 23rd International Conference on Process Control (PC)*, IEEE, Jun. 2021, pp. 157–162, ISBN: 978-1-6654-0330-6. 🔗 DOI: 10.1109/PC52310.2021.9447527.

Academic Presentations

International Conference Presentations

11. **E. M. Turan** and J. Jaschke, "A simple two-parameter steady-state detection algorithm : Concept and experimental validation," in *33rd European Symposium on Computer Aided Process Engineering*, 2023.

10. **E. M. Turan** and J. Jaschke, "**Invited workshop.** strategies for efficient and robust model predictive control," in *24th International Conference on Process Control*, 2023.

9. **E. M. Turan**, R. Kannan, and J. Jäschke, "Optimality-based discretization methods for the global optimization of nonconvex semi-infinite programs," in *Workshop: PanOptiC View on Global Optimization*, 2023.

8. **E. M. Turan**, S. Lia, J. Matias, and J. Jaschke, "Experimental validation of modifier adaptation and Gaussian processes for real time optimisation," in *22nd IFAC World Congress*, 2023.

7. **E. M. Turan** and J. Jaschke, "Neural network control policies for uncertain systems," in *2022 Nordic Process Control Workshop*, 2022.

6. **E. M. Turan** and J. Jaschke, "Online steady and transient state detection using the dickey-fuller test," in *2022 AIChE Annual Meeting*, 2022.

5. **E. M. Turan** and J. Jäschke, "**Keynote:** designing neural network control policies under parametric uncertainty: a koopman operator approach," (*13th IFAC Symposium on Dynamics and Control of Process Systems, including Biosystems*, 2022.

4. **E. M. Turan**, R. Kannan, and J. Jäschke, "Design of PID controllers using semi-infinite programming," 2022.

3. **E. M. Turan**, R. Kannan, and J. Jäschke, "Improved Lower Bounding Method for Semi-infinite Programming," in *2022 INFORMS Annual Meeting*, 2022.

2. **E. M. Turan**, R. Kannan, and J. Jäschke, "Tighter lower bounds for semi-infinite programming using parametric sensitivity theory," in *2022 AIChE Annual Meeting*, 2022.

1. **E. M. Turan** and J. Jaschke, "Classification of undesirable events in oil well operation," in *2021 23rd International Conference on Process Control (PC)*, 2021.