

# Scientific Production List

## January 2022 - February 2026

Thao Dang

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### BOOKS

1. Thao Dang, Volker Stolz. Runtime Verification - 22nd International Conference, RV 2022, Tbilisi, Georgia, September 28-30, 2022, Proceedings. Lecture Notes in Computer Science 13498, Springer 2022

### REFEREED JOURNAL PAPERS

1. B. Aubouin-Pairault, M. Reus, B. Meyer, R. Wolf, M. Fiacchini, and T. Dang. A Comprehensive Framework for the Prediction of Intra-Operative Hypotension *IEEE Journal of Biomedical and Health Informatics*, 2025
2. Hadi Dayekh, Nicolas Basset and Thao Dang. Learning of Switched Nonlinear Dynamical Systems: Passive and Active Approaches. *Special Issue Design and Verification of Cyber-Physical Systems: From Theory to Applications*, LNCS series, Springer, 2025
3. Bob Aubouin-Pairault, Mirko Fiacchini, and Thao Dang. Online identification of pharmacodynamic parameters for closed-loop anesthesia with model predictive control. *Computers & Chemical Engineering*, vol 191, Dec 2024.
4. Bob Aubouin-Pairault, Mirko Fiacchini, and Thao Dang. Data-based modeling of the Pharmacodynamics for the effect of Propofol and Remifentanyl during General Anesthesia. *Biomedical Signal Processing and Control*, vol 98, Dec 2024.
5. Akshay Mambakam, José Ignacio Requeno Jarabo, Alexey Bakhirkin, Nicolas Basset and Thao Dang. Mining of Extended Signal Temporal Logic Specifications with ParetoLib 2.0. *Formal Methods in System Design*, 2024.
6. Bob Aubouin-Pairault, Mirko Fiacchini, and Thao Dang. Comparison of Multiple Kalman Filter and Moving Horizon Estimator for the Anesthesia Process. *Journal of Process Control*, 2024.
7. Daniel Denardi Huff, Mirko Fiacchini, Thao Dang, Teodoro Alamo. Optimized coadministration of propofol and remifentanyl during the induction phase of total intravenous anesthesia with statistical validation. *IEEE Control Systems Letters (L-CSS)*, 2024.
8. Kaouther Moussa, Bob Aubouin-Pairault, Mazen Alamir, Thao Dang. Data-based Extended Moving Horizon Estimation for MISO Anesthesia Dynamics. *IEEE Control Systems Letters*, 2023, 7, pp.3054-3059
9. Bob Aubouin-Pairault, Thao Dang, Mirko Fiacchini. PAS: a Python Anesthesia Simulator for drug control. *Journal of Open Source Software*, 2023, 8 (88), pp.5480.

10. Alberto Casagrande, Thao Dang, Luca Dorigo, Tommaso Dreossi, Carla Piazza. Parameter synthesis of polynomial dynamical systems. *Information and Computation*, 2022, 289, pp.104941
11. Arvind S. Adimoolam, Thao Dang. Safety Verification of Networked Control Systems by Complex Zonotopes. *Leibniz Trans. Embed. Syst.* 8(2): 01:1-01:22 (2022)

## REFEREED INTERNATIONAL CONFERENCE PAPERS

1. Ana María Gómez-Ruiz, Alexandre Donzé and Thao Dang. RLRom: Monitoring and Training Reinforcement Learning Agents using Signal Temporal Logic. *OVERLAY 2025: 7th International Workshop on Artificial Intelligence and fOrmal VERification, Logic, Automata, and sYnthesis*, Bologna, Italy, October 25-26, 2025
2. Benoit Barbot, Nicolas Basset, Thao Dang, Alexandre Donzé, Marco Esposito and Dejan Nickovic. Signal Sampling and Optimisation under Symbolic Timed Automata Constraints. *Proc. of QEST-FORMATS (Int Conf on Quantitative Evaluation of SysTems, Int Conf on Formal Modeling and Analysis of Timed Systems)*, Springer, 2025.
3. Hadi Dayekh, Nicolas Basset, and Thao Dang. Active Learning of Switched Non-linear Dynamical Systems. *Proceedings of the 63rd IEEE Conference on Decision and Control (CDC 2024)*, Dec 2024, Milan.
4. Hadi Dayekh, Nicolas Basset, and Thao Dang. Hybrid System Identification through Optimization and Active Learning *IFAC Conference on Analysis and Design of Hybrid Systems ADHS*, July 2024.
5. Bob Aubouin-Pairault, Mirko Fiacchini, and Thao Dang. PID and Model Predictive Control Approach for Drug Dosage in Anesthesia During Induction: a Comparative Study. *Proc. IFAC Conference on Advances in Proportional-Integral-Derivative Control*, Spain, June 2024.
6. Thao Dang. Formal Design of Cyber-Physical Systems with Learning-Enabled Components. *Proc. OVERLAY 2023, AIXIA*, Rome, November 2023.
7. Kaouther Moussa, Bob Aubouin-Pairault, Mazen Alamir, Mohammad Ajami and Thao Dang. Moving Horizon Estimation for Anesthesia dynamics. *PGMODAYS 2023*.
8. Thao Dang, Alexandre Donzé, Inzemamul Haque, Nikolaos Kekatos, Indranil Saha. Counter-Example Guided Imitation Learning of Feedback Controllers from Temporal Logic Specifications. *Proceedings of the 62nd IEEE Conference on Decision and Control (CDC 2023)*, Dec 2023, Singapore.
9. Kaouther Moussa, Bob Aubouin-Pairault, Mazen Alamir, Thao Dang. Data-based Extended Moving Horizon Estimation for MISO Anesthesia Dynamics. *Proceedings of the 62nd IEEE Conference on Decision and Control (CDC 2023)*, Dec 2023, Singapore.
10. Arvind Adimoolam, Thao Dang, Indranil Saha. Safe Self-Triggered Control Based on Precomputed Reachability Sequences. *Proceedings of the 26th ACM International Conference on Hybrid Systems: Computation and Control*, May 2023, San Antonio Texas, United States.
11. Akshay Mambakam, Eugene Asarin, Nicolas Basset, Thao Dang. Pattern Matching and Parameter Identification for Parametric Timed Regular Expressions. *Proceedings 26th ACM International Conference on Hybrid Systems: Computation and Control*, May 2023, San Antonio, United States.

12. Bob Aubouin-Pairault, Mirko Fiacchini, Thao Dang. Data-based Pharmacodynamic Modeling for BIS and Mean Arterial Pressure Prediction during General Anesthesia. *Proceedings of ECC 2023 - 21st European Control Conference*, European Control Association; University Politecnica Bucharest, Jun 2023, Bucarest, Romania.
13. Franz Mayr, Sergio Yovine, Federico Pan, Nicolas Basset, Thao Dang: Towards Efficient Active Learning of PDFAs. *Proc. LearnAut 2022*, Jul 2022, Paris, France.

### Invited Talks

- Invited talk “Control and Monitoring of Anesthesia using Formal Methods and Machine Learning”, Symposium on Control Engineering for Health, November 20–21, 2025, at Helmholtz Centre for Infection Research (HZI), Braunschweig, Germany.
- Invited talk “Learning of Switched Nonlinear Dynamical Systems”, Int Conf on Artificial Intelligence and Information ICAI 2025, Sept 2025, Xidian University, Xi’an, China.
- Invited talk at Séminaire thématique “Impact des systèmes cyberphysiques”, CNRS-INS2I, March 6, Paris.
- Keynote talk at FORMATS Formal Modeling and Analysis of Timed Systems 2022, Title: A Behaviour-based Approach to Quantitative Validation of Cyber-Physical Systems, Warsaw, September 2022

### Tool Development

- Python Anesthesia Simulator. Contribution: developer. [https://github.com/BobAubouin/Python\\_Anesthesia\\_Simulator](https://github.com/BobAubouin/Python_Anesthesia_Simulator). The tool enables simulations of anesthesia processes, drawing on various models from the scientific literature as well as models that we developed
- ParetoLib (Multidimensional Pareto Boundary Learning). Contribution: leader. [https://gricad-gitlab.univ-grenoble-alpes.fr/verimag/tempo/multidimensional\\_search](https://gricad-gitlab.univ-grenoble-alpes.fr/verimag/tempo/multidimensional_search). The applications include the approximation of Pareto fronts in multi-criteria optimization, as well as parameter synthesis for predicates whose dependence on the parameters is monotonic.
- STLROM. Contribution: developer. <https://github.com/decyphir/STLROM>. The tool enables the monitoring of behaviours of reinforcement learning (RL) agents with respect to specified requirements, identifying both expected and unexpected behaviors. It improves the design, interpretability, and development of RL problems with safe, reliable, and efficient agents.