

Curriculum vitae

Thao Dang, Research Director
National Center for Scientific Research CNRS
Laboratory VERIMAG,
Université Grenoble Alpes

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Section 1

Summary

Personal Information

Thao DANG born in 1973 in Hanoi, Vietnam
Languages Vietnamese, French, English, Russian

Degrees

29 January 2010 *Habilitation à diriger des recherches*
Université Joseph Fourier
Methods and Tools for Computer Aided Design of Embedded Systems
10 October 2000 *Thèse de doctorat en Automatique,*
Institut National Polytechnique de Grenoble (avec félicitations du jury)
Verification and Synthesis of Hybrid Systems
1996 *D.E.A. en Automatique et Productique,*
Institut National Polytechnique de Grenoble
Diplôme d'Ingénieur
Ecole Nationale Supérieure d'Ingénieurs Electriciens de Grenoble
1994 *Diplôme d'Ingénieur en Instrumentation,*
Ecole Polytechnique, Hanoi, Vietnam

Career

Since Oct 2020 CNRS Research Director DR1, first class
VERIMAG, National Center for Scientific Research CNRS
Oct 2014 – Oct 2020 CNRS Research Director DR2, second class
VERIMAG, National Center for Scientific Research CNRS
Jan 2006 – Oct 2014 Researcher CR1 (Chargé de recherche CR1)
VERIMAG, National Center for Scientific Research CNRS
Jan 2002 – Jan 2005 Researcher CR2 (Chargé de recherche CR2)
VERIMAG, National Center for Scientific Research CNRS
2001 – 2002 Postdoctoral researcher
University of Pennsylvania, Philadelphia, USA

Section 2

Professional Activities

2.1 Supervision Activities

PhD Student Supervision

- Ana-Maria Gomez Ruiz, started in Oct 2022, STL-based Reinforcement Learning, co-advised with Alexandre Donze (Decyphir).
- Bob Aubouin Pairault, started in Oct 2021, Data-based Anesthesia Monitoring, co-advised with Mirko Fiacchini (GiPSA Lab, Grenoble).
- Hadi Dayekh, started in Sept 2021, Learning for Modelling and Synthesis of AI-CPS, co-advised with Nicolas Basset (VERIMAG, UGA).
- Thomas Mari, PhD thesis title: Explainable Design of Cyber-Physical Systems, joint supervision with Gregor Goessler (INRIA Grenoble), defended in Dec 2023.
- Akshay Mambakam, PhD thesis title: Learning Temporal Specifications (joint supervision with Nicolas Basset, VERIMAG, UGA), defended in June 2023.
- Nikolaos Kekatos, co-supervised with Goran Frehse. PhD title: Formal Verification of Cyber-Physical Systems in the Industrial Model-Based Design Process, defended in December 2018.
- Arvind S. Adimoolam, PhD thesis: Abstract Domains for Hybrid Systems Verification, defended in June 2018.
- Alexandre Rocca, joint supervision with Eric Fanchon (TIMC-IMAG Laboratory, Grenoble), PhD thesis: Formal techniques for biological systems modelling and analysis, defended in May 2018.
- Mohammad Al Khatib, joint supervision with Antoine Girard (Laboratory Jean Kuntzmann), PhD thesis: Computation-Aware Implementation of Control Systems, defended on 29 September 2017.
- Tommaso Dreossi, joint supervision with Carla Piazza (Udine University, Italy), PhD thesis: Polynomial methods for specification and validation of biological systems, defended in January 2016.
- Romain Testylier, PhD Thesis: Algorithmic analysis of non-linear systems, since October 2009, defended in September 2012.
- Tarik Nahhal, PhD Thesis: Model-based testing of hybrid systems, defended in October 2007.
- Alexandre Donzé, PhD Thesis: Methods for hybrid controller synthesis using graph search, co-advised with Oded Maler, defended in June 2007.

Postdoc and Researcher Supervision

- Marco Esposito, Postdoc, 2023 - 2024.
- Nikolaos Kekatos, Postdoc, 2019 - 2021.
- Victor Magron, CNRS researcher, 2016.
- Ouri Maler, research engineer, October 2018 - January 2020
- Nisha Mishra, research engineer, September 2018 - April 2019.

2.2 Expertise Activities

2.2.1 PhD and Habilitation Committees

- "Rapporteur" of the PhD thesis of *Honglu Sun, Ecole Centrale de Nantes*. Title: Identifying and Analyzing Long-term Dynamical Behaviors of Gene Regulatory Networks with Hybrid Modeling. December 2023.
- "Rapporteur" of the HDR thesis of *Ocan Sankur, IRISA, Université de Rennes*. Title: Contributions on Formal Methods for Timed and Probabilistic Systems. October 2023.
- "Examinateur" of the PhD thesis of *Dylan Marinho, Université de Lorraine*. Title: Theoretical and algorithmic contributions to the analysis of safety and security properties in timed systems under uncertainty. October 2023.
- Reviewer of the PhD Thesis of *Kostiantyn Potomkin, School of Computing, Newcastle University, UK*. Title: Scalable Verification of Cyber-Physical Systems. May 2023.
- "Rapporteur" of the HDR thesis of *Eric Gascard, Université Grenoble Alpes*. Title: Méthodologies et algorithmes pour l'analyse de la sûreté de fonctionnement des systèmes industriels complexes, December 2022.
- "Rapporteur" of the PhD thesis of *Francois Bidet, Institut polytechnique de Paris*. Title: Reachability analysis with Lebesgue-integrable time-varying uncertainties. September 2022.
- Opponent of the PhD thesis defence of *Zahra Ramezani, Chalmers University of Technology, Sweden*. Title: On Optimization-Based Falsification of Cyber-Physical Systems. October 2022.
- "Examinateur" of the PhD thesis of *Eléa Thibault-Greugny, Institut polytechnique de Paris*. Title: Computational modeling approaches to multifactorial aspects of atopic dermatitis. October 2022.
- Member of the grading committee of the PhD thesis of *Viktorio El Hakim, University of Twente, The Netherlands*. Title: Modeling and Analysis of Sampled-Data Cyber-Physical Systems. March 2021.
- Member of the grading committee of *Yulong Gao, KTH Royal Institute of Technology, Stockholm*. Title: Safe Autonomy under Uncertainty: Computation, Control, and Application. December 2020.
- "Rapporteur" of the PhD thesis of *Victor Roussanaly, Université de Rennes 1*. Title: Efficient verification of real time systems. November 2020.
- President of the jury of the PhD thesis of *Thomas de Mezo, ENSTA Bretagne*. Title: Bracketing largest invariant sets of dynamical systems: an application to drifting underwater robots in ocean currents. December 2019.
- President of the jury of the PhD thesis of *Rany Kahil, Université Grenoble Alpes*. Title: Schedulability in Mixed-criticality Systems. June 2019.
- "Rapporteur" of the PhD thesis of *Yann Duploux, ENS Cachan*. Title: Applying Formal Methods to Autonomous Vehicle Control. November 2018.
- "Examinateur" of the HDR thesis of *Étienne André, LIPN - Université Paris 13*. Title: Contributions to parametric timed model checking: Theory and algorithms, 14 June 2018.
- "Rapporteur" of the PhD thesis of *Nikolas Stott, Ecole Polytechnique*. Title: Majorants minimaux dans l'ordre de Löwner et application au calcul d'invariants de systèmes commutés, 23 November 2017.

- "Examineur" of the PhD thesis of *Adrien Le Coënt*, *CMLA, ENS Cachan*. Title: Guaranteed control synthesis for switched space-time dynamical systems, 2 October 2017.
- "Rapporteur" of the PhD thesis of *Sameh Mohamed*, *Ecole Polytechnique*. Title: Une méthode topologique pour la recherche d'ensembles invariants de systèmes continus et à commutation - Sur une application effective du principe de Ważewski, October 2016.
- "Rapporteur" of the PhD thesis of *Miriam Garcia Soto*, *IMDEA, Madrid, Spain*. Title: An Algorithmic Approach for Stability Verification of Hybrid Systems, 31 July 2017.
- "Rapporteur" of the PhD thesis of *Khalil Ghorbal*, *Ecole Polytechnique*. Title: Static Analysis of Numerical Programs: Constrained Affine Set Abstract Domains, July 2011.

2.2.2 Recruitment Committees

- Member of Recruitment Committee of Assistant Professors, Université de Toulouse, 2024.
- Member of Recruitment Committee of Assistant Professors, Université Paris Créteil, 2024.
- Member of Recruitment Committee of Chaire Professeur Junior, Ecole Polytechnique, 2024.
- Member of Recruitment Committee of Assistant Professors in Applied Mathematics, Université Grenoble Alpes, 2023.
- Member of Recruitment Committee of Professors in Computer Science, École centrale de Nantes, 2022.
- Member of Recruitment Committee of INRIA researchers, Inria de l'Université de Rennes, 2022.
- Member of Recruitment and Promotion Committee, Telecom Paris, 2021.
- Reviewer for Recruitment of Assistant Professors, Université Paris Créteil, 2020.
- Reviewer for Recruitment of Professors, Technical University of Munich, 2019.
- Reviewer for Recruitment of Professors, University of Luxembourg, 2019.
- Member of Recruitment Committee of Assistant Professors and Professors of Université Grenoble Alpes, 2018.
- Member of Recruitment Committee of Professors of l'Ecole Polytechnique, 2018.
- Member of Recruitment Committee of Professors de Ecole centrale de Nantes, 2016.

2.2.3 Award Committees

- Test-of-Time Award Committees for Conferences Hybrid System: Computation and Control HSCC 2019, 2020, 2021
- Best paper award committee, Hybrid System: Computation and Control HSCC 2021
- SIGBED Frank Anger Memorial Award Committee 2020

2.2.4 Evaluation Committees

- Member of the College of Expert Reviewers, European Science Foundation, since 2020
- Member of the selection committees of research programs of Japanese-French ANR-CREST 2023, Hil-Paris-Fellowship 2021, Dutch funding agency (NWO Talent Programme 2020), Israel Science Foundation (2020), Austrian Science Fund (2017), ANR (2011), DIGITEO Supelec (2011-2012)

2.3 Editorial Activities

- Associate Editor of Journal Research Directions: Cyber-Physical Systems, Cambridge University Press, since 2023
- Associate Editor of Journal Nonlinear Analysis: Hybrid Systems, Elsevier, since 2018
- Associate Editor of Journal Discrete Event Dynamic Systems: Theory and Applications, Springer, since 2018
- Program Co-Chair of RV 2022 Runtime Verification, September 2022, Tbilisi, Georgia

- Program Co-Chair of MTCPS 2018 (Monitoring and Testing of Cyber-Physical Systems), April 2018, Porto
- Program Co-Chair of HSCC 2012 Hybrid System: Computation and Control, April 2012, Beijing, China
- Recent Program Committees of the conferences (since 2020): ADHS 2024 (Analysis and Design of Hybrid Systems), EMSOFT 2020, 2021 (Embedded Software), ATVA 2022, 2023, 2024, MEMOCODE 2021, 2022, 2023, 2024, RV 2022, 2023, 2024 (Runtime Verification), RTSS 2022, 2023 (Real-Time Systems Symposium), FORMATS 2020, 2022 (Formal Modeling and Analysis of Timed Systems), FMICS 2020 (Formal Methods for Industrial Critical Systems), CSBio 2020, 2021 (Computational Systems-Biology and Bioinformatics), HSCC 2020, 2021, 2022, 2023 (Int. Conference Hybrid System: Computation and Control)

2.4 Technology Transfer, Industrial Relations

2.4.1 Patent

Coverage guided technique for bug finding in control systems and software, US Patent issued on 24 Oct 2017, with Toyota TEMA and UC Berkeley.

2.4.2 Research Projects and Grants

- Coordinator of CyPhAI Nov 2020 - Nov 2025 (Formal design methods for AI-intensive Cyber-Physical Systems), Franco-Japanese ANR-JST CREST project in the joint Call Mathematical Information Platform. Partners: University of Kyoto, National Institute of Informatics NII Tokyo, LAAS Toulouse, IRIF Paris, VERIMAG Grenoble, LACL Paris. 500K Euro
- ANR Project ADAPT Adapt hierarchical component-based systems dynamically, 2024-2028. Partners: FEMTO-ST Besancon, INRIA Lille, VERIMAG. 400K Euro
- Collaborative Project (Equipe d'action) DAMON Data-based Anesthesia Monitoring, Oct 2021 - Oct 2025. Partners: GIPSA-lab (Grenoble), Verimag (Grenoble), CHU Grenoble, LAAS (Toulouse), CHU Toulouse, University of Seville. 180K Euros
- European Project FOCETA Oct 2020 - Oct 2023, Foundations for Continuous Engineering of Trustworthy Autonomy. 1200K Euro
- PI of Project PRC-INDE-CNRS Formal Verification of Autopilot Software for UAVs. With IIT Kanpur (India), 2018-2020. 40K Euro
- Project SYMER (Metabolic and Epigenetic Regulation) Cross Disciplinary Program (CDP), IDEX, with IAB (Institute for Advanced Biosciences, Grenoble), EMBL Grenoble (European Molecular Biology Laboratory), CIBEST (Chimie Interface Biologie pour l'Environnement, la Santé et la Toxicologie), LBFA (Laboratoire de bioénergétique fondamentale et appliquée), CHU Grenoble (Centres Hospitaliers Universitaires), TIMC Lab, LiPhy (Laboratoire Interdisciplinaire de Physique Grenoble, PACTE (laboratoire de sciences sociales). Coordinator for VERIMAG. 800K Euro
- Project MoDyLAM (Dynamic modeling of iron-linked redox perturbations in Acute Myeloid Leukemia), Program Plan Cancer 2014-2019, INSERM, with TIMC-IMAG, CEA/BIG, CHU. 500K Euro
- PI of Industrial Contract with Toyota TEMA, *Simulation-Based Coverage Testing for Dynamical Systems*, Principal coordinator, 2013 - 2018. The focus of this project is on extending the coverage-guided test generation technique developed in VERIMAG to a SIMULINK model-based design tool and application to automotive system models. 420K Euro
- PI of Project ANR-INS MALTHY *Algebraic Methods for Real-time and Hybrid model checking*. Principal coordinator, 2014-2017. Three other research partners are the INRIA Rennes, CEA LIST (Saclay), INRIA Saclay, and one industrial partner Object Direct (Grenoble). 785K Euro

- Project ANR-BLANC COMPACS *Computation-Aware Control Design and Implementation*. Local coordinator for VERIMAG, 2014-2017. Laboratory Jean Kuntzmann LJK (applied mathematics), Research Centre for Automatic Control CRAN (control theory), VERIMAG (computer science). 309K Euro
- PI of Industrial Funding from Bosch (Germany), Testing of Embedded Systems, 2015-2016. 50K Euro
- PI of Industrial Contract with EASII-IC. (Grenoble), Principal coordinator, *Model generation for analog and mixed-signal systems*, 2015-2016. The focus of this project is on developing trace-based model generation and identification for analog and mixed-signal systems. 50K Euro
- PI of Industrial Contract with United Technologies Corp (Ireland), Principal coordinator, *Validation of HVAC (heating, ventilating, and air conditioning) systems*, Sept 2014 - June 2015. 50K Euro
- Co-PI of Exploratory Research Grant PERSYVAL, 2014-2015, with LJK laboratory and GIPSA Laboratory (Grenoble). Topic: Set Theory for Design of Complex Systems,. 12K Euro.
- Project ANR VEDECY *Verification of Cyber-Physical Systems*. Local coordinator for VERIMAG, 2009-2011. Two other partners are POP-ART of INRIA Rhône-Alpes and the laboratory Jean Kuntzmann LJK. 300K Euro
- PI of Project ANR VAL-AMS *High Confidence Validation of Analog and Mixed Signal Circuits*. Principal coordinator, 2007-2009. Two other partners are BIPOP of INRIA Rhône-Alpes and the laboratory Jean Kuntzmann LJK. 500K Euro
- Project MINALOGIC ATHOLE Faculty Investigator, (2007-2010). The other partners are Thales, CEA-LETI, CWS (Coupling Waves Solutions). The goal of this project is the development of an embedded architecture with high performance and low consumption.
- Project IST PROSYD *Property-based design of electronic systems*. Faculty Investigator, 2004 - 2007. The industrial partners of this project are **IBM**, Infineon, ST Microelectronics.
- European IST project CC *Control and Computation*, Faculty Investigator, 2002-2005.
- CNRS STIC project CORTOS *Control and Observation of Real-Time Open Systems*, Faculty Investigator, 2003-2006.
- CNRS MathSTIC project SQUASH *Qualitative Analysis of Hybrid systems*, Faculty Investigator, 2002-2003.
- DARPA project *MoBIES – Model Based Integration of Embedded Software*, University of Pennsylvania, 2001.
- European ESPRIT-LTR project, Participation in European ESPRIT-LTR project *VHS Verification of Hybrid systems*, 1998-2000.

2.5 Teaching Activities

- Feedback Control and Real-Time Systems. Master in Computer Science, MOSIG, ENSIMAG, INPG (National Polytechnical Institute in Grenoble), 20 hours of lecture. since 2019.
- Probabilistic, Timed and Hybrid Systems. Master in Computer Science, MOSIG, ENSIMAG, INPG (National Polytechnical Institute in Grenoble), 8 hours of lecture. 2019.
- Implementation of control systems, Undergraduate level, 2nd year, ENSIMAG, INPG (National Polytechnical Institute in Grenoble), 2015 and 2016. 20 hours of lecture.
- Models with uncertainty and multitask implementation of control systems, Undergraduate level, 3rd year, ENSIMAG, INPG (National Polytechnical Institute in Grenoble), since 2015 - 2020.

2.6 Research Management

- Member of Steering Committee of International Conference HSCC Hybrid Systems: Computation and Control, since 2019
- Member of Scientific Committee of MSTIC Dept, Université Grenoble Alpes, since 2019.
- Leader of the Tempo team (Timed and Hybrid Systems) 2018- 2020, and co-leader of MOHYTOS MODular HYbrid and Timed cOmponent-based Systems (since 2020) at the laboratory VERIMAG.
- Member of the Steering Committee of the research action Modeling and Simulating the physical world of Labex Persyval-Lab (laboratoire of excellence), 2012-2018.
- Committee of Experts, Université Joseph Fourier, Grenoble, 2007-2009.

2.7 Awards

- HSCC Test-of-Time Award 2019 for the paper “Reachability Analysis via Face Lifting. T. Dang and O. Maler. Hybrid Systems: Computation and Control HSCC’98. LNCS 1386, pp 96-109, Springer-Verlag, 1998”
- Best Paper Award at ARITH24 (24th IEEE Symposium on Computer Arithmetic) for the paper “Certified Roundoff Error Bounds using Bernstein Expansions and Sparse Krivine-Stengle Representations”, Alexandre Rocca, Victor Magron, Thao Dang, 2017.
- IFIP TESTCOM/FATE 2008 Best Paper Award for the paper “Using disparity to enhance test generation for hybrid systems”, Thao Dang and Tarik Nahhal, 2008

2.8 Invited Talks

- 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
- Keynote talk at Frontiers in Analog CAD and International Workshop on Design Automation for Analog and Mixed-Signal Circuits, October 2021 Title: *Toward Analog CAD Without Frontiers - In Memoriam Oded Maler*. November 7, 2019, Westminster, Colorado.
- Invited presentation at Hybrid Systems Biology HSB 2019. Title: *Oded Maler: An odyssey from Computer Science to Biological Sciences*, April 2019, Prague.
- Invited presentation at Modelling, Measuring and Managing Uncertainty in CPS. Title: *Set Based Computation for Modelling and Analysis of Uncertain Dynamical Systems*, July 2018, University of York, England.
- Invited talk at Methods and Tools for Distributed Hybrid Systems (DHS 2018). Title: *Invariance and stability verification of hybrid systems*. Ecole Polytechnique, Palaiseau, France, 4 July 2018.
- Invited lectures at Halmstad Summer School on Cyber-Physical Systems 2018. Title: *Validation of Cyber-Physical Systems: from Formal to Semi-Formal*. June 2018, Halmstad, Sweden.
- Invited talk at 5th International Workshop on Synthesis of Complex Parameters. Title: *Parameter synthesis for biological systems modelling*. Thessaloniki, Greece. April 2018.
- Invited talk at International Workshop on Symbolic and Numerical Methods for Reachability Analysis (SNR’16). Title: *Template Complex Zonotopes: A New Set Representation for Verification of Hybrid Systems*, 2016, Vienna.

2.9 Publication List

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
- [2] Thao Dang, Stefan Ratschan: Proceedings 6th International Workshop on Symbolic-Numeric methods for Reasoning about CPS and IoT, SNR 2020, online, 31 August 2020. EPTCS 331, 2021
- [3] Oded Maler, Adam M. Halasz, Thao Dang, Carla Piazza (Eds). Hybrid Systems Biology - Second International Workshop, HSB 2013, Taormina, Italy, September 2, 2013 and Third International Workshop, HSB 2014, Vienna, Austria, July 23-24, 2014, Revised Selected Papers. Lecture Notes in Computer Science 7699, Springer.
- [4] T. Dang and C. Piazza (Eds). *Proceedings of the 2nd International Workshop Hybrid Systems and Biology, HSB 2013*, EPTCS 125. Taormina, Italy, Sept 2013.
- [5] T. Dang and I. Mitchell (Eds). *Proceedings of the 15th ACM International Conference Hybrid Systems: Computation and Control, HSCC 2012*. Beijing, China, April 17-19, 2012. ACM 2012, isbn 978-1-4503-1220-22012.

BOOK CHAPTERS

- [1] Thao Dang, Tommaso Dreossi, Eric Fanchon, Oded Maler, Carla Piazza and Alexandre Rocca. *Set-Based Analysis for Biological Modelling*. Automated Reasoning for Systems Biology and Medicine, Computational Biology Series, Springer, 2019.
- [2] Mohammad Al Khatib, Antoine Girard, and Thao Dang. *Timing Contracts for Multi-core Embedded Control Systems*. Chapter in Control subject to Computational and Communication Constraints: current challenges, LNCIS 475, Springer, 2018.
- [3] Arvind S. Adimoolam and Thao Dang. *Template Complex Zonotope Based Stability Verification*. Chapter in Control subject to Computational and Communication Constraints: current challenges, LNCIS 475, Springer, 2018.
- [4] T. Dang. *Model-based Testing of Hybrid Systems*. Chapter in Model-Based Testing for Embedded Systems, CRC Press, 2011.
- [5] S. Tripakis and T. Dang. *Modeling, Verification and Testing using Times and Hybrid Automata*. Chapter in Model-based Design of Heterogeneous Systems, CRC Press, 2009.
- [6] T. Dang, G. Frehse, A. Girard and C. Le Guernic. *Outil pour l'analyse des modèles hybrides*. In O. Roux and C. Jard, editors. *Approches formelles des systèmes embarqués communicants*. Traité IC2, série Informatique et systèmes d'information, pages 245-268. Hermes Lavoisier, 2008.
- [7] T. Dang and Ph. Gerner. *A geometric approach to scheduling of concurrent real-time processes sharing resources*. In Vedran Kordic, editors. *Multiprocessor Scheduling, Theory and Applications*. ARS Press, Vienna, Austria/Pro Literatur Verlag, Mammendorf, Germany, 2007.
- [8] T. Dang, B. Krogh, O. Maler, and R. Ruttenbar. Proceedings of the first workshop on Verification of Analog Circuits FAC'05. Electronic notes in Theoretical Computer Science, Elsevier, 2005.

REFEREED JOURNAL PAPERS

- [1] 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.

- [2] 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.
- [3] 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.
- [4] 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
- [5] 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.
- [6] Alberto Casagrande, Thao Dang, Luca Dorigo, Tommaso Dreossi, Carla Piazza. Parameter synthesis of polynomial dynamical systems. *Information and Computation*, 2022, 289, pp.104941
- [7] 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)
- [8] Victor Magron, Alexandre Rocca, Thao Dang. Certified Roundoff Error Bounds using Bernstein Expansions and Sparse Krivine-Stengle Representations. *IEEE Transactions on Computers*, 2019.
- [9] Tommaso Dreossi, Thao Dang, and Carla Piazza. Reachability computation for polynomial dynamical systems. *Formal Methods in System Design*, 50(1): 1-38 (2017).
- [10] Mohammad Al Khatib, Antoine Girard, and Thao Dang. Stability verification and timing contract synthesis for linear impulsive systems using reachability analysis. *Nonlinear Analysis: Hybrid Systems*, 50(1): 211-226 (2017), Elsevier.
- [11] T. Dang and R. Testylier. Reachability analysis for polynomial dynamical systems using the Bernstein expansion. *Reliable Computing Journal*, Special issue: Bernstein Polynomials in Reliable Computing, ISSN 1573-1340, December 2012.
- [12] T. Dang, C. Le Guernic, and O. Maler. Computing reachable states for nonlinear biological models. *Theoretical Computer Science*, 2011.
- [13] T. Dang and T. Nahhal. Coverage-guided test generation for continuous and hybrid systems. *Formal Methods in System Design*, 34(2):183-213, 2009.
- [14] E. Asarin, T. Dang, and A. Girard. Hybridization methods for the analysis of nonlinear systems. *Acta Inf.*, 43(7):451-476, 2007.
- [15] R. Alur, T. Dang, and F. Ivancic. Counter-example guided predicate abstraction of hybrid systems. *Theoretical Computer Science (TCS)*, 354(2):250-271, 2006.
- [16] R. Alur, T. Dang, and F. Ivancic. Reachability analysis of hybrid systems via predicate abstraction. *ACM Transactions on Embedded Computing Systems (TECS)*, 5(1):152-199, 2006.
- [17] Thao Dang. Reachability-based technique for idle speed control synthesis. *International Journal of Software Engineering and Knowledge Engineering IJSEKE*, 15 (2), 2005.
- [18] R. Alur, T. Dang, J. Esposito, Y. Hur, F. Ivancic, V. Kumar, I. Lee, P. Mishra, G. Pappas, and O. Sokolsky. Hierarchical modeling and analysis of embedded systems. *Proceedings of the IEEE, Special Issue on Modeling and Design of Embedded Software*, 2002.
- [19] E. Asarin, O. Bournez, T. Dang, O. Maler, and A. Pnueli. Effective synthesis of switching controllers for linear systems. *Proceedings of the IEEE*, 88:1011-1025, 2000.

REFEREED INTERNATIONAL CONFERENCE PAPERS

- [1] Hadi Dayekh, Nicolas Basset, Thao Dang. Hybrid System Identification through Optimization and Active Learning *IFAC Conference on Analysis and Design of Hybrid Systems ADHS*, July 2024.

- [2] 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.
- [3] Thao Dang. Formal Design of Cyber-Physical Systems with Learning-Enabled Components. *Proc. OVERLAY 2023*, AIxIA, Rome, November 2023.
- [4] Kaouther Moussa, Bob Aubouin-Pairault, Mazen Alamir, Mohammad Ajami and Thao Dang. Moving Horizon Estimation for Anesthesia dynamics. *PGMODAYS 2023*.
- [5] Thao Dang, Alexandre Donz 'e, Inzepamul 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.
- [6] 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.
- [7] 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.
- [8] 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.
- [9] 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.
- [10] Franz Mayr, Sergio Yovine, Federico Pan, Nicolas Basset, Thao Dang: Towards Efficient Active Learning of PDFAs. *Proc. LearnAut 2022*, Jul 2022, Paris, France.
- [11] Thomas Mari, Thao Dang, Gregor Gössler: Explaining Safety Violations in Real-Time Systems. *Proceedings of FORMATS 2021*. LNCS 12860, pp 100-116, Springer, 2021.
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