Van-Giang Trinh: Curriculum Vitae

1 Personal

- Name: Van-Giang Trinh (Trịnh Văn Giang in Vietnamese)
- Address: 1 rue Honoré d'Estienne d'Orves 91120 Palaiseau
- Email: van-giang.trinh@inria.fr
- Google Scholar, Website, Lab
- Citizenship: Vietnamese

2 Employment History and Education

2.1 Employment History

- Postdoc, Lifeware team, Inria Saclay, Palaiseau, France 10/2024–current

  Supervisor: Research Director (DRCE). François Fages

- Postdoc, Laboratoire d'Informatique & Systèmes, Aix-Marseille University 04/2022–09/2024

  Supervisor: Prof. Belaid Benhamou

- Part-time Researcher, School of Information Science, Japan Advanced Institute of Science and Technology 01/2022–03/2022
- Doctoral Student, School of Information Science, Japan Advanced Institute of Science and Technology 10/2018–12/2021
- Research Student, School of Information Science, Japan Advanced Institute of Science and Technology 10/2017–09/2018
- Research Assistant, Faculty of Computer Science and Engineering, Ho Chi Minh City University of Technology 06/2016–06/2017
- Internship, School of Information Science, Japan Advanced Institute of Science and Technology 10/2015–11/2015

2.2 Education

- **Ph.D.**, Information Science, Japan Advanced Institute of Science and Technology, Japan 10/2018–12/2021

  Supervisor: Prof. Kunihiko Hiraishi

  Thesis Title: On attractor detection and optimal control of Boolean networks

  Jury: Prof. Kunihiko Hiraishi, Prof. Tatsuya Akutsu, Assoc. Prof. Koichi Kobayashi, Prof. Mineo Kaneko, and Assoc. Prof. Daisuke Ishii

- **Master of Science**, Computer Science, Ho Chi Minh City University of Technology, Vietnam 08/2014–04/2017

  Supervisor: Assoc. Prof. Quan Thanh Tho

- **Bachelor of Science**, Computer Science, Ho Chi Minh City University of Technology, Vietnam 09/2009–04/2014

  Supervisor: Assoc. Prof. Quan Thanh Tho

- **High School**, Le Loi High School, Tho Xuan, Thanh Hoa, Vietnam 09/2006–05/2009

3 Research

3.1 Research Interests

My research interests include theoretical computer science, symbolic artificial intelligence, and computational systems biology. In particular, I focus on knowledge representation and reasoning frameworks such as Boolean networks, Petri nets, answer set programming, abstract argumentation, their connections, and their applications to modeling, analysis, and control of biological systems.

3.2 Awards

1. Outstanding Performance Award, Japan Advanced Institute of Science and Technology 12/2021
2. Japanese Government (Monbukagakusho: MEXT) Scholarship, Japan Advanced Institute of Science and Technology 10/2017–09/2021
3. JAIST President Award, Japan Advanced Institute of Science and Technology 09/2019

3.3 Publications

3.3.1 Submitted

1. **Van-Giang Trinh**, Kyu Hyong Park, Samuel Pastva, & Jordan C Rozum. (2024). Mapping the attractor landscape of Boolean networks. ***Oxford Bioinformatics***. (under review) https://doi.org/10.1101/2024.09.30.615897

3.3.2 International Journals (top venues in bold)

1. **Van-Giang Trinh**, Belaid Benhamou, & Sylvain Soliman. (2023b, September). Trap spaces of Boolean networks are conflict-free siphons of their Petri net encoding. ***Theoretical Computer Science***, *971*, 114073. (Scimago Q2, IF 1.1, CORE Rank A, Google Scholar top 5/20) https://doi.org/10.1016/j.tcs.2023.114073

2. Tarek Khaled, Belaid Benhamou, & **Van-Giang Trinh**. (2023, July). Using answer set programming to deal with Boolean networks and attractor computation: Application to gene regulatory networks of cells. ***Annals of Mathematics and Artificial Intelligence***, 1–38. (Scimago Q3, IF 1.2, CORE Rank C) https://doi.org/10.1007/s10472-023-09886-7

3. **Van-Giang Trinh**, Belaid Benhamou, Thomas Henzinger, & Samuel Pastva. (2023a, June). Trap spaces of multi-valued networks: Definition, computation, and applications. ***Oxford Bioinformatics***, *39*(Supplement_1), i513–i522. (Scimago Q1, IF 5.8, Google Scholar top 1/20) https://doi.org/10.1093/bioinformatics/btad262

4. **Van-Giang Trinh**, & Kunihiko Hiraishi. (2020b). On attractor detection and optimal control of deterministic generalized asynchronous random Boolean networks. ***IEEE/ACM Transactions on Computational Biology and Bioinformatics***, *19*(3), 1794–1806. (Scimago Q2, IF 4.5, CORE Rank C, Google Scholar top 7/20) https://doi.org/10.1109/TCBB.2020.3043785

5. **Van-Giang Trinh**, Tatsuya Akutsu, & Kunihiko Hiraishi. (2020). An FVS-based approach to attractor detection in asynchronous random Boolean networks. ***IEEE/ACM Transactions on Computational Biology and Bioinformatics***, *19*(2), 806–818. (Scimago Q2, IF 4.5, CORE Rank C, Google Scholar top 7/20) https://doi.org/10.1109/TCBB.2020.3028862

6. **Van-Giang Trinh**, & Kunihiko Hiraishi. (2020c). A study on attractors of generalized asynchronous random Boolean networks. *IEICE TRANSACTIONS on Fundamentals of Electronics, Communications and Computer Sciences*, *103*(8), 987–994. (Scimago Q3, IF 0.3, CORE Rank C) https://doi.org/10.1587/transfun.2019EAP1163

7. **Van-Giang Trinh**, Le Ngoc Kim Khanh, Bang Ngoc Bao Tam, Tram Loi Quan, Bui Hoai Thang, & Quan Thanh Tho. (2016). Modelling and congestion detection of wireless sensor networks: A concurrent-based approach using coloured Petri nets. *International Journal of Applied Information Systems*, *11*(7), 1–9. https://doi.org/10.5120/ijais2016451629

8. Pham Hong Long, **Van-Giang Trinh**, Dinh Hoang Mai, Mai Phuong Nam, Quan Thanh Tho, & Ngo Quang Hung. (2014). Assisting students in finding bugs and their locations in programming solutions. *International Journal of Quality Assurance in Engineering and Technology Education (IJQAETE)*, *3*(2), 12–27. https://doi.org/10.4018/ijqaete.2014040102

3.3.3 International Conferences (top venues in bold)

1. **Van-Giang Trinh**, Belaid Benhamou, & Vincent Risch. (2025, February). Graphical analysis of abstract argumentation frameworks via Boolean networks. In *International Conference on Agents and Artificial Intelligence* (pp. 745–756). (regular paper, AR 23.09%, CORE Rank B) https://doi.org/10.5220/0013346400003890

2. Quang-Anh Nguyen, Thu-Trang Pham, Thi-Hai-Yen Vuong, Van-Giang Trinh, & Ha-Thanh Nguyen. (2025, February). Detecting misleading information with LLMs and explainable ASP. In *International Conference on Agents and Artificial Intelligence* (pp. 1327–1334). (short paper, CORE Rank B) https://doi.org/10.5220/0013357400003890

3. **Van-Giang Trinh**, Belaid Benhamou, Sylvain Soliman, & François Fages. (2024, October). Graphical conditions for the existence, unicity and number of regular models. In ***International Conference on Logic Programming*** (pp. 175–187). (regular paper, CORE Rank A, top-one in logic programming) https://doi.org/10.4204/EPTCS.416.16

4. **Van-Giang Trinh**, Belaid Benhamou, Samuel Pastva, & Sylvain Soliman. (2024, February). Scalable enumeration of trap spaces in Boolean networks via answer set programming. In ***Annual AAAI Conference on Artificial Intelligence*** (p. 10714-10722). (regular paper, **oral presentation**, AR 23.8% for the overall conference and 2.3% for oral presentation, CORE Rank A*, top-one in general AI) https://doi.org/10.1609/aaai.v38i9.28943

5. **Van-Giang Trinh**, Belaid Benhamou, & Sylvain Soliman. (2023a, August). Efficient enumeration of fixed points in complex Boolean networks using answer set programming. In ***International Conference on Principles and Practice of Constraint Programming*** (pp. 35:1–35:19). (regular paper, AR 40%, CORE Rank A, top-one in constraint programming) https://doi.org/10.4230/LIPIcs.CP.2023.35

6. **Van-Giang Trinh**, Belaid Benhamou, Thomas Henzinger, & Samuel Pastva. (2023b, July). Trap spaces of multi-valued networks: Definition, computation, and applications. In ***The 31st Annual Intelligent Systems For Molecular Biology and the 22nd Annual European Conference on Computational Biology***. Oxford University Press. (regular paper, AR 17.9%, CORE Rank A, top-one in computational biology) https://doi.org/10.1093/bioinformatics/btad262

7. **Van-Giang Trinh**, Kunihiko Hiraishi, & Belaid Benhamou. (2022, August). Computing attractors of large-scale asynchronous Boolean networks using minimal trap spaces. In ***ACM International Conference on Bioinformatics, Computational Biology and Health Informatics*** (pp. 1–10). ACM. (regular paper, AR 29%, flagship conference of the ACM SIGBio) https://doi.org/10.1145/3535508.3545520

8. **Van-Giang Trinh**, Belaid Benhamou, Kunihiko Hiraishi, & Sylvain Soliman. (2022, August). Minimal trap spaces of logical models are maximal siphons of their Petri net encoding. In *International Conference on Computational Methods in Systems Biology* (pp. 158–176). Springer. (regular paper, AR 65%) https://doi.org/10.1007/978-3-031-15034-0_8

9. **Van-Giang Trinh**, & Kunihiko Hiraishi. (2021, October). An improved method for finding attractors of large-scale asynchronous Boolean networks. In *IEEE International Conference on Computational Intelligence in Bioinformatics and Computational Biology* (pp. 1–9). IEEE. (regular paper, AR 51%, CORE Rank C) https://doi.org/10.1109/cibcb49929.2021.9562947

10. **Van-Giang Trinh**, & Kunihiko Hiraishi. (2019, June). Algorithms for finding attractors of generalized asynchronous random Boolean networks. In *12th Asian Control Conference* (pp. 67–72). IEEE. Retrieved from http://ieeexplore.ieee.org/document/8765169 (regular paper, AR 73%)

11. Le Ngoc Kim Khanh, **Van-Giang Trinh**, Bui Hoai Thang, & Quan Thanh Tho. (2017, April). Probabilistic modelling for congestion detection on wireless sensor networks. In *International Conference on Control, Decision and Information Technologies* (pp. 0190–0195). IEEE. (regular paper, AR 48%, CORE Rank C) https://doi.org/10.1109/CoDIT.2017.8102589

12. **Van-Giang Trinh**, Nguyen Duc Khoan, Nguyen Duy Khuong, Vu Phu Thuc, & Quan Thanh Tho. (2016, September). Fast-and-Fit: An intelligent auto-pricing system for airlines travel agencies. In *SAI Intelligent Systems Conference* (pp. 853–865). Springer. (regular paper) https://doi.org/10.1007/978-3-319-56994-9_58

13. **Van-Giang Trinh**, Kunihiko Hiraishi, & Quan Thanh Tho. (2016, July). Modeling and analysing Boolean networks by coloured Petri nets. *IEICE Proceedings Series*, *61*(4447). (regular paper) https://doi.org/10.34385/proc.61.4447

14. Bao Trung Pham Duy, **Van-Giang Trinh**, Le Dinh Thuan, & Quan Thanh Tho. (2015, October). Reusing symbolic observation graph for efficient model checking. In *International Conference on Knowledge and Systems Engineering* (pp. 250–255). IEEE. (regular paper) https://doi.org/10.1109/kse.2015.44

3.3.4 International Workshops

1. **Van-Giang Trinh**, & Kunihiko Hiraishi. (2020a, December). An efficient method for approximating attractors in large-scale asynchronous Boolean models. In *International Workshop on Biological Network Analysis and Integrative Graph-Based Approaches, in conjunction with IEEE International Conference on Bioinformatics and Biomedicine* (pp. 1820–1826). IEEE. (workshop paper, AR 60%) https://doi.org/10.1109/bibm49941.2020.9313230

3.3.5 Technical Reports

1. **Van-Giang Trinh**, & Belaid Benhamou. (2024). Static analysis of logic programs via Boolean networks. *CoRR*, *abs/2407.09015*. https://doi.org/10.48550/ARXIV.2407.09015

2. **Van-Giang Trinh**, Belaid Benhamou, & Loïc Paulevé. (2024). mpbn: a simple tool for efficient edition and analysis of elementary properties of Boolean networks. *CoRR*, *abs/2403.06255*. https://doi.org/10.48550/ARXIV.2403.06255

3.3.6 Other Publications

1. F. Kordon, H. Garavel, L. M. Hillah, F. Hulin-Hubard and G. Chiardo, A. Hamez, L. Jezequel, A. Miner, J. Meijer, E. Paviot-Adet, D. Racordon, C. Rodriguez, C. Rohr, J. Srba, Y. Thierry-Mieg, **Van-Giang Trinh**, & K. Wolf. (2016, June). *Complete Results for the 2016 Edition of the Model Checking Contest*. Retrieved from https://mcc.lip6.fr/2016/index.php

3.4 Talks and Seminars

1. LIRICA Seminar (St Charles, Marseille), Graphical conditions for the existence, unicity and number of regular models (25/11/2024)
2. MABioS seminar (Luminy, Marseille), Trap spaces of multi-valued networks: definition, computation, and applications (30/09/2024)
3. Seminar on Mathematical Foundations for Computer Science (Hanoi, Vietnam), Trap spaces of Boolean networks are conflict-free siphons of their Petri net encoding (20/08/2024)
4. UET seminar (Hanoi, Vietnam), Scalable enumeration of trap spaces in Boolean networks via answer set programming (19/08/2024)
5. CSE-HCMUT seminar (Ho Chi Minh city, Vietnam), Scalable enumeration of trap spaces in Boolean networks via answer set programming (12/08/2024)
6. Journées annuelles 2024 du GT Bioss (LIP6, Paris), Trap spaces of multi-valued networks: definition, computation, and applications (27/05/2024)
7. LIRICA Seminar (St Charles, Marseille), Scalable enumeration of trap spaces in Boolean networks via answer set programming (25/03/2024)
8. Lifeware Seminar (INRIA Saclay), Trap spaces of Boolean networks are conflict-free siphons of their Petri net encoding (05/12/2023)
9. IRISA Seminar (IRISA, Rennes), Efficient enumeration of fixed points in complex Boolean networks using answer set programming (30/11/2023)
10. LIRICA Seminar (St Charles, Marseille), Efficient enumeration of fixed points in complex Boolean networks using answer set programming (20/11/2023)
11. Demi Journées du Pôle Calcul on Artificial Intelligence (Luminy, Marseille), Efficient enumeration of fixed points in complex Boolean networks using answer set programming (15/06/2023)
12. CANA Seminar (Luminy, Marseille), Trap spaces of Boolean networks are conflict-free siphons of their Petri net encoding (30/05/2023)
13. Journées BioLogique BIOSS/CAVIAR (LIP6, Paris), An approach based on ASP and Petri nets for the calculation of attractors in Boolean networks (25/05/2023)
14. Journées Scientifiques du LIS (Carry le Rouet), Efficient enumeration of minimal trap spaces in large-scale Boolean networks of gene networks (23/05/2023)
15. LIRICA Seminar (St Charles, Marseille), Minimal trap spaces of Boolean models are maximal siphons of their Petri net encoding (17/10/2022)
16. LIRICA Seminar (Virtual), An FVS-based approach to attractor detection in asynchronous Boolean networks (28/06/2021)

4 Teaching

4.1 Courses

- Exercises on Graph Theory (graduate course, teaching assistant)
  - Japan Advanced Institute of Science and Technology: 06/2021–08/2021
- Functional Programming (graduate course, teaching assistant)
  - Japan Advanced Institute of Science and Technology: 10/2020–12/2020
- Introduction to Computer Programming (undergraduate course, visiting lecturer)
  - Ho Chi Minh City University of Technology: 01/2017–06/2017

- Principles of Programming Languages (undergraduate course, teaching assistant)
  - Ho Chi Minh City University of Technology: 09/2013–01/2014, 09/2014–01/2015, 09/2015–01/2016
- Object-Oriented Programming (undergraduate course, teaching assistant)
  - Ho Chi Minh City University of Technology: 09/2015–01/2016
- Principles of Programming Languages (undergraduate course, visiting lecturer)
  - Ho Chi Minh City University of Natural Resources and Environment: 01/2015–05/2015
- Data Structures and Algorithms (undergraduate course, teaching assistant)
  - Ho Chi Minh City University of Technology: 09/2012–01/2013, 01/2015–05/2015
- Programming Fundamentals (undergraduate course, teaching assistant)
  - Ho Chi Minh City University of Technology: 01/2015–05/2015

5 Professional Service

5.1 Journals Reviewers

- SIAM Journal on Applied Dynamical Systems, 1 paper, 2023
- IEEE/ACM Transactions on Computational Biology and Bioinformatics, 1 paper, 2023
- IEEE/ACM Transactions on Computational Biology and Bioinformatics, 1 paper, 2022

6 References

Belaid Benhamou, Ph.D., Professor
Laboratoire d'Informatique et Systèmes, Aix Marseille University
13397 Marseille Cedex 20, France
Saint-Jérôme, POLYTECH GII, bureau P203
04 91 05 60 10, belaid.benhamou@lis-lab.fr

Kunihiko Hiraishi, Ph.D., Professor
School of Information Science, Japan Advanced Institute of Science and Technology
1-1 Asahidai, Nomi, Ishikawa 923-1292, Japan
IS Building III 9F
0761-51-1281, hira@jaist.ac.jp

Tatsuya Akutsu, Ph.D., Professor
Bioinformatics Center, Institute for Chemical Research, Kyoto University
Uji, Kyoto 611-0011, Japan
+81-774-38-3022, takutsu@kuicr.kyoto-u.ac.jp

Sylvain Soliman, Ph.D., Chargé de Recherche Hors Classe (CRHC)
Inria Saclay-Île-de-France, EPI Lifeware
Bât. A. Turing, 1 r Honoré d'Estienne d'Orves, Campus de l'École Polytechnique, 91120 PALAISEAU, FRANCE
(+33) 1 74854243, Sylvain.Soliman@inria.fr