

Yisong Wang

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Research interests

Artificial intelligence, and in particular,

Knowledge representation & reasoning

Theory and practice of logic programming

Non-monotonic logic and non-monotonic reasoning

Semantic Web

Computer security

Grants

- (1) Resolution proof based explainability for incomplete knowledge reasoning and its applications, NS-F62376066, 490,000 Yuan, 2024.01-2027.121. (with Ling Shen, Xiaoying Tu, Ying Zhan)
- (2) Research and development of multi-party clearing and settlement system based on blockchain (No. Z20200038), 2020 – 2021, 80,000 Yuan (with Yin Zhan)
- (3) Research on key technologies and industrial application of multivariate data sharing based on ontology data access. Guizhou Science Support Project (No. 2022-259), 176,000 Yuan, 2022.04.01-2025.03.31. (2/17)
- (4) Inductive learning disjunctive logic programs and its application, NSFC 61976065, 610,000 Yuan, 2020.01–2023.12. (with Jia-huai You, Mingyi Zhang, Xiaonan Zhou, Zhengli Wang, Ying Zhang, Yi Huang, Wei Wang, Panfeng Chen, Renyan Feng)
- (5) The Research on Fusion Analysis Theory and Secure Control Models of Block Data for Data Sharing and Applications, NSFC U1836205 (subproject, 3/10), 437,400 Yuan, 2019.01–2022.12. (with Renran Feng, Xiaomin Yu, Panfeng Chen, Wei Wang, Ling Shen, Xiaonan Zhou, Jin Qin, Bin Hu, Li Zhang)
- (6) A study on key techniques for handling incomplete knowledge. Special funds for training outstanding talents, No. (2015)01, 180,000 Yuan, 2015.08 – 2018.08.
- (7) Inductive Learning in Nonmonotonic Logic and Its Applications, Science and Technology Foundation of Guizhou Province, No. [2014]7640, 50,000 Yuan, 2014.12 – 2016.12.

- (8) Forgetting Theory and Its Applications in Incomplete Knowledge Base, NSF61370161, 700,000 Yuan, 2014.1 – 2017.12.
- (9) The research and application of diagnosis reasoning based-on forgetting in logic programs. The shareholder Fund of Guizhou Province under grant (2012)62. 55,000 Yuan, 2013.1 – 2015.12.
- (10) The study of key technologies of nonmonotonic reasoning for the semantic web. State Key Laboratory of Computer Science, Institute of Software, Chinese Academy of Sciences (SYSKF1106), 100,000 Yuan, 2011.1 – 2012.12.
- (11) The study and implementation of Answer set programming with functions, NSF60963009, 200,000 Yuan, 2010.1 – 2012.12.
- (12) The study of Answer Set Programming, The Natural Science Foundation of Educational Commission of Guizhou Province (2008)011, 40,000 Yuan, 2009.1 – 2011.12.
- (13) The study and application of Answer Set Programming, Science and Technology Foundation of Guizhou Province [2008]2119, 36,000 Yuan, 2008.6 – 2010.7.
- (14) The study and implement of answer set programming with functions, Scientific Research Fund for talents recruiting of Guizhou University (2007)042, 40,000 Yuan, 2009.1 – 2011.12.

Prototype systems

witness: compute minimal beta-witness for answer sets of logic programs

<https://github.com/ywang168/witness>

minimal_model: compute minimal models based on python-sat (By Zhongtao Xie)

https://github.com/francisol/py_minimal_model

LDIFF: Computation propositional logical difference

<https://github.com/ywang168/ldiff>

LFDT: Learning disjunctive programs from state transitions

<https://github.com/ywang168/LFDT>

FASP: Answer set programming with functions

<http://www.cse.ust.hk/fasp/>

A latest version available at <http://www.cs.ualberta.ca/~yisong/fasp>

ldiff: Clausal logical difference

<http://210.40.16.99/ldiff/>

LFIO: Inductive learning from input and output (Coauthored with Xu Wang)

<https://github.com/XuWang1991/LFIO>

Education

B.S. Software, Guizhou University, 1994–1998.

M.A. Computer application, Guizhou University, 2001–2004.

Ph.D. Computer software and theory, Guizhou University, 2004–2007.

Employment

Head of Institute for Artificial Intelligence of Guizhou University, 2021–

Guizhou University, 2011– , professor.

Guizhou University, 1998–2004, teaching assistant.

Guizhou University, 2004–2007, lecture.

Guizhou University, 2007–2011, associate professor.

Teaching

For undergraduates:

Mathematical Logic (2024 Spring for CS)

Introduction to Artificial Intelligence (2023 Autumn for CS, 2021 Autumn for AI, 2020 Spring, 2019 Spring, 2018 Spring, 2017 Winter, 2016 Winter, 2015 Winter, 2014 Winter, 2012 Winter, 2010 Winter, 2006 Winter, 2004 Winter)

Linux System (2023 Autumn for AI, 2023 Autumn for SE, 2022 Autumn, 2021 Autumn, 2020 Autumn(A), 2020 Autumn(B), 2020 Spring, 2017 Winter (with Haining Zhang), 2016 Winter, 2015 Winter, 2015 Spring, 2014 Spring, 2012 Spring, 2011 Spring, 2009 Spring, 2007 Spring, 2006 Spring)

Academic lectures (2023 Autumn for AI)

Cognition of Artificial Intelligence for AI discipline (2021 Spring)

Discrete Mathematics (2013 Winter)

Advanced Language Programming (2008 Winter)

Operating System (2002)

Object-Oriented Programming (2001)

For postgraduates:

Mathematical Logic for Computer Science (2024 Spring, 2023 Autumn, 2022 Autumn, 2021 Spring, 2020 Spring, 2018 Winter, 2017 Winter, 2016 Winter, 2015 Winter, 2014 Winter, 2010 Winter)

Non-classical Logics (2009 Winter)

Artificial Intelligence (2017 Spring)

A Discipline of Programming (2014 Spring)

Introduction to Logic Programming (2017 Spring, 2016 Spring, 2015 Spring, 2013 Spring)

Science Research Writing in English (2012 Winter, 2013 Winter)

Introduction to Automata Theory (2012 Spring)

For PhD students:

Frontier of Artificial Intelligence (2023 Autumn, 2022 Autumn, 2020 Autumn, 2019 Autumn, 2019 Spring)

Non-classical Logics (2021 Autumn, 2021 Autumn, 2020 Autumn, 2019 Autumn, 2018 Winter)

Introduction to the Theory of Computation (2014 Winter, 2013 Winter)

Awards and fellowships

April 2021 – May 2021, visiting fellow, School of Mathematical Science, Peking University.

June 2018 – Aug. 2018, visiting fellow, Department Computer Science, Potsdam University.

May 2016 – Aug. 2016, visiting fellow, Department Computer Science, Texas Tech University.

June 2014 – Aug. 2014, visiting fellow, Institute for Integrated and Intelligent Systems (IIIS), Griffith University.

Dec. 2012 – May 2013, visiting fellow, Institute for Integrated and Intelligent Systems (IIIS), Griffith University.

June 2011 – Nov. 2011, visiting fellow, Department of Mathematics and Computer Science, University of Western Sydney.

May 2009 – April 2010, **Postdoctoral fellowship**, Department of Computing Science, University of Alberta, Canada.

Oct. 2007 – Oct. 2008, **Postdoctoral fellowship**, Department of Computer Science and Engineering, Hong Kong university of Science and Technology, Hong Kong.

Ray Reiter best paper prize at KR-2006 (with Yin Chen, Fangzhen Lin, and Mingyi Zhang)

Mar. 2005 – Jun. 2005, visiting scholar, Department of Computer Science, Hong Kong university of Science and Technology, Hong Kong.

Sep. 2002 – Dec. 2002, visiting scholar, Department of Mathematics and Computer Science, Leicester University, UK.

Publications

Books and Chapters

- (1) Mingyi Zhang, Yisong Wang. Default Logic and Answer Set Programs, SCIENCE PRESS, 2023.

Journal Articles

- (1) Yisong Wang and Jia-Huai You. Answer set programming: a system view. Communications of Chinese Association for Artificial Intelligence, Vol. 14, 2024, 24-32 (In Chinese)
- (2) Yisong Wang, Hong Liu, Ying Zhang, Mingyi Zhang, Danning Li, Jiajia Yang. What's new in the evolution of propositional knowledge bases? Journal of Guizhou University (Natural Sciences), Vol. 41, No. 1, 2024, 1-19
- (3) Yisong Wang, Hong Liu, Ying Zhang, Mingyi Zhang, Danning Li, Jiajia Yang. What's new in the evolution of propositional knowledge bases? Journal of Guizhou University (Natural Sciences), Vol. 41, No. 1, 2024, 1-19
- (4) Xiaomin Yu, Yisong Wang*, Jin Qin, Panfeng Chen: A Q-Based Policy Gradient Optimization Approach for Doudizhu. Applied Intelligence, 2023, 53, 15372-15389
- (5) Lei Yang, Yisong Wang*, Hongbo Hu, Renyan Feng and Jun Liu: Fuzzy Multi-Context Systems. IEEE Transactions on Fuzzy Systems, 2023, 31(3), 745-759.
- (6) Yisong Wang, Thomas Eiter, Yuanlin Zhang, Fangzhen Lin: Witnesses for Answer Sets of Logic Programs. ACM Transactions on Computational Logic, 2023, 24(2), 1-46.
- (7) Renyan Feng, Yisong Wang*, Ren Qian, Lei Yang, Panfeng Chen: Knowledge Forgetting in Propositional μ -calculus. Annals of Mathematics and Artificial Intelligence, 91, 1-43, 2023.
- (8) Renyan Feng, Erman Acar*, Yisong Wang*, Wanwei Liu, Stefan Schlobach, Weiping Ding*: Computing Sufficient and Necessary Conditions in CTL: A Forgetting Approach. Information Science, Volume 616, 2022, Pages 474-504.
- (9) Panfeng Chen, Yisong Wang, Xiaomin Yu, Renyan Feng: QLogicE: Quantum Logic Empowered Embedding for Knowledge Graph Completion. Knowl. Based Syst. 239: 107963 (2022).
- (10) Li Zhang, Yisong Wang*, Zhongtao Xie, Renyan Feng: Computing Propositional Minimal Models: MiniSAT Based Approaches. Journal of Computer Research and Development, 58(11), 2515-2523, 2021. (In Chinese)
- (11) Yi Huang, Yisong Wang*, Jia-Huai You, Mingyi Zhang, Ying Zhang: Learning Disjunctive Logic Programs from Nondeterministic Interpretation Transitions. New Generation Computing, 39(1): 273-301 (2021).

- (12) Panfeng Chen, Yisong Wang*, Quan Yu, Yi Fan, Renyan Feng: Hamming Distance Encoding Multihop Relation Knowledge Graph Completion. *IEEE Access*, v8, 117146-117158, 2020.
- (13) Shiming Chen, Yisong Wang*, Chin-Teng Lin, Weiping Ding, Zehong Cao*: Semi-supervised Feature Learning For Improving Writer Identification. *Information Science*, v482, 156-170, 2019.
- (14) CHEN Shi-Ming, WANG Yi-Song*: A Robust Off-line Writer Identification Method. *ACTA AUTOMATICA SINICA*, 46(01),105-113, 2020. (In chinese)
- (15) Yisong Wang, Yan Zhang, Yi Zhou and Mingyi Zhang. Knowledge Forgetting in Answer Set Programming. *Journal of Artificial Intelligence Research*, 2014(50),31-70.
- (16) Yisong Wang, Jia-Huai You, Li Yan Yuan, Yi-Dong Shen and Mingyi Zhang. The loop formula based semantics of description logic programs. *Theoretical Computer Science*. Volume 415 (2012), Page 60-85.
- (17) Yisong Wang, Jia-Huai You, Fangzhen Lin, Li-Yan Yuan, Mingyi Zhang. 2011. Weight constraint programs with evaluable functions. *Annals of Mathematics and Artificial Intelligence*: Volume 60, Issue 3 (2011), Page 341-380.
- (18) Yisong Wang, Jia-Huai You, Li-Yan Yuan, Yi-Dong Shen. 2010. Loop Formulas for Description Logic Programs. *Theory and Practice of Logic Programming*. Volume 10, special issue (4-6):531-545.
- (19) Yisong Wang, Mingyi Zhang, Jia-Huai You. 2009. Logic Programs, Compatibility and Forward Chaining Construction. *Journal of Computer Science and Technology* 24(6): 1125-1137.
- (20) Yisong Wang; Mingyi Zhang and Yuping Shen. 2007. Consistency property of finite FC-normal logic programs. *Journal of Computer Science and Technology* 22(4):554-561.

Proceedings

- (1) Xin Zhou, Yisong Wang*, Renyan Feng, Songhang Xu: Strong Forgetting in Hennessy-Milner Logic. *Proceedings of the International Symposium on Theoretical Aspects of Software Engineering 2024, TASE 2024, Guiyang, China, 2024*. Springer, Cham, 465-472.
- (2) Yisong Wang, Wei Wang, Xianglong Wang, Zhuo Chen: On One-Pixel Attacking Medical Images against Deep Learning Models. *Proceedings of the 2023 4th International Symposium on Artificial Intelligence for Medicine Science, ISAIMS 2023, Chengdu, China, October 20-22, 2023*. ACM 2023, 248-257
- (3) Renyan Feng, Erman Acar*, Stefan Schlobach, Yisong Wang* and Wanwei Liu: On Sufficient and Necessary Conditions in Bounded CTL: A Forgetting Approach. *The 17th International Conference on Principles of Knowledge Representation and Reasoning September 12-18, 2020 - Rhodes, Greece*, 361-370, 2020.

- (4) Yisong Wang, Hong Liu, Ying Zhang, Mingyi Zhang and Danning Li: Logical Difference of Propositional Theories. The 13th International FLINS Conference on Data Science and Knowledge Engineering for Sensing Decision Support.
- (5) Renyan Feng, Yisong Wang*, Panfeng Chen and Jincheng Zhou: Strongest Necessary and Weakest Sufficient Conditions in S5. The 13th International FLINS Conference on Data Science and Knowledge Engineering for Sensing Decision Support.
- (6) Cuixia Li Yisong Wang*, Renyan Feng, Qianqian Li: Loop Formulas for Alog Answer Set Programs. 2017 International Conference on Computer Science and Artificial Intelligence. 38-42, 2017.
- (7) Hong LIU, Ren-yan FENG, Xu WANG and Yi-song WANG*: The Logical Difference Between Propositional Horn Theories. The 2nd International Conference on Artificial Intelligence: Techniques and Applications (AITA2017), 183-187, 2017.
- (8) Renyan Feng, Qianqian Li, Zhenpeng Zhang, Yisong Wang*: A new descriptive method for Gripper planning. 2017 9th International Conference on Intelligent Human-Machine Systems and Cybernetics, 239-242, 2017.
- (9) Yi Huang, Yisong Wang*, Ying Zhang, Mingyi Zhang: Learning from Non-deterministic Interpretation Transition. ILP-2016 (**Best student paper**).
- (10) Yisong Wang, Xu Wang, Yi Huang: Learning Datalog Programs from Input and Output. ILP-2016.
- (11) Jianmin Ji, Jia-Huai You, Yisong Wang*: On Forgetting Postulates in Answer Set Programming. IJCAI 2015, Proceedings of the Twenty-Fourth International Joint Conference on Artificial Intelligence: 3076-3083
- (12) Yisong Wang, Kewen Wang, Zhe Wang, Zhiqiang Zhuang: Knowledge Forgetting in Circumscription: A Preliminary Report. AAAI 2015, Proceedings of the Twenty-Ninth Conference on Artificial Intelligence: 1649-1655.
- (13) Yisong Wang, Jia-Huai You, Mingyi Zhang: Embedding Functions into Disjunctive Logic Programs. Theoretical Aspects of Computing - ICTAC 2013 - 10th International Colloquium, 355-372, 2013: 543-555.
- (14) Yisong Wang, Kewen Wang, Mingyi Zhang: Forgetting for Answer Set Programs Revisited. IJCAI 2013, Proceedings of the 23rd International Joint Conference on Artificial Intelligence, 1162-1168.
- (15) Yisong Wang, Zhiqiang Zhuang, Kewen Wang: Belief Change in Nonmonotonic Multi-Context Systems. Logic Programming and Nonmonotonic Reasoning, 12th International Conference, LPNMR 2013: 543-555.
- (16) Yisong Wang, Thomas Eiter, Jia-Huai You, Li-Yan Yuan, Yi-Dong Shen: Eliminating Nonmonotonic DL-Atoms in Description Logic Programs. Web Reasoning and Rule Systems - 7th International Conference, RR 2013: 168-182.

- (17) Sebastian Binnewies, Yisong Wang, Bela Stantic, Kewen Wang: Rule Revision in Normal DL Logic Programs. *Web Reasoning and Rule Systems - 7th International Conference*, RR 2013: 204-209.
- (18) Yisong Wang, Fangzhen Lin and Mingyi Zhang. A Well-founded Semantics for Basic Logic Programs with Arbitrary Abstract Constraint Atoms. *Twenty-Sixth Conference on Artificial Intelligence (AAAI-12)*, 835-841.
- (19) Yisong Wang, Yan Zhang, Yi Zhou and Mingyi Zhang. Forgetting in Logic Programs under Strong Equivalence. *The 13th International Conference on Principles of Knowledge Representation and Reasoning (KR-2012)*, Rome, Italy. 2012: 643-647.
- (20) Yisong Wang and Mingyi Zhang. Answer Set Programming Modulo Theories. *Applied Informatics and Communication: International Conference, ICAIC 2011, Xi'an China*, 2011: 655-661.
- (21) Yisong Wang, Ying Zhang and Mingyi Zhang. Constructing First-order Loops of Normal Logic Programs. *Eighth International Conference on Fuzzy Systems and Knowledge Discovery (FSKD)*, Shanghai, China. 2011: 358-362.
- (22) Yisong Wang, Jia-Huai You, Li-Yan Yuan, and Mingyi Zhang. 2009. Weight Constraint Programs with Functions. In *Proceedings of 10th International Conference on Logic Programming and Nonmonotonic Reasoning*, 329-341, Potsdam, Germany, LNCS 5753.
- (23) Fangzhen Lin and Yisong Wang. 2008. Answer set programming with functions. In *Proceedings of Eleventh International Conference on Principles of Knowledge Representation and Reasoning*, 454-464. Sydney, Australia: AAAI Press.
- (24) Yisong Wang and Xinqiang Ma. 2008. Some results on order consistent logic program. In *Proceedings of The Fifth International Conference on Fuzzy Systems and Knowledge Discovery*, volume 5, 557-561. Jinan, Shandong, China: IEEE Computer Society.
- (25) Chen Yin; Fangzhen Lin; Yisong Wang and Mingyi Zhang. 2006. First-order loop formulas for normal logic programs. In *Proceedings of The Tenth International Conference on Principles of Knowledge Representation and Reasoning*, 298-307. Lake District of the United Kingdom: AAAI Press. (Ray Reiter Best paper)
- (26) Yisong Wang and Mingyi Zhang. 2004. Revision programs with explicit negation. In *Proceedings of The First International Colloquium of Theoretical Aspects of Computing*, volume 3407/2005 of *Lecture Notes in Computer Science*, 403-414. Guiyang, China: Springer Berlin / Heidelberg.

Workshops

- (1) Yisong Wang, Jia-Huai You, Li-Yan Yuan, Yi-Dong Shen. 2010. Normal Description Logic Programs as Default Theories. *NonMon@30*.

- (2) Yisong Wang, Jia-Huai You and Mingyi Zhang. Embedding Functions into Disjunctive Logic Programs. ASPOCP09, 46-60
- (3) Mingyi Zhang, Ying Zhang and Yisong Wang. 2006. On compatibility and forward chaining normality. In Proceedings of The Eleventh International Workshop on Non-Monotonic Reasoning, 163-171.

Professional Activities

Associate editor of

2018.06- Annals of Mathematics and Artificial Intelligence

Organizer of

KRW-2022, The 9th International Chinese Scholar Workshop on Knowledge Representation and Reasoning

KRW-2024, The 9th International Chinese Scholar Workshop on Knowledge Representation and Reasoning

PC member of

IJCAI-2024(PC), The 32th International Joint Conference on Artificial Intelligence

ECAI-2024, The 28th European Conference on Artificial Intelligence

KR-2023, The 20th International Conference on Principles of Knowledge Representation and Reasoning

ISWC-2023, The 22st International Semantic Web Conference

ISWC-2022, The 21st International Semantic Web Conference

IJCAI-2022(PC), The 30th International Joint Conference on Artificial Intelligence

KR-2021, The 18th International Conference on Principles of Knowledge Representation and Reasoning

IJCAI-2021(Senior PC), The 29th International Joint Conference on Artificial Intelligence

ECAI-2020, The 24th European Conference on Artificial Intelligence

IJCAI-PRICAI 2020(Senior PC), The 28th International Joint Conference on Artificial Intelligence

KR-2020, The 17th International Conference on Principles of Knowledge Representation and Reasoning

FLINS/ISKE 2020, The 13th International FLINS Conference on Robotics and Artificial Intelligence

AAAI-2020, The 34th Conference on Artificial Intelligence

IJCAI-2019, The 27th International Joint Conference on Artificial Intelligence

LPNMR-2019, The 16th International Conference on Logic Programming and Nonmonotonic Reasoning

IULP-2019, The 3rd International Workshop on User-Oriented Logic Paradigms

AAAI-2019(Senior PC), The 33th Conference on Artificial Intelligence

IJCAI-2018, The 28th International Joint Conference on Artificial Intelligence

FLINS-2018, The 13th International FLINS Conference on Data Science and Knowledge Engineering for Sensing Decision Support (FLINS 2018)

NCML-2017, 2017 National Conference on Modern Logic

IJCAI-2017, The 27th International Joint Conference on Artificial Intelligence

LPNMR-2017, The 15th International Conference on Logic Programming and Nonmonotonic Reasoning

IJCAI-2016, The 25th International Joint Conference on Artificial Intelligence

NCML-2016, 2016 National Conference on Modern Logic

AAAI-2016, The 30th Conference on Artificial Intelligence

IJCAI-2015, The 24th International Joint Conference on Artificial Intelligence

LPNMR-2015, The 14th International Conference on Logic Programming and Nonmonotonic Reasoning

KR-2014, the 14th International Conference on Principles of Knowledge Representation and Reasoning

IJCAI-2013, The 23rd International Joint Conference on Artificial Intelligence

LPNMR-2013, The 13th International Conference on Logic Programming and Nonmonotonic Reasoning

KR-2012, The 13th International Conference on Principles of Knowledge Representation and Reasoning

AAAI-2012, The 26th Conference on Artificial Intelligence

IJCAI-2011, The 22nd Joint Conference on Artificial Intelligence

ASPCOMP-2011, The 3rd (Open) Answer Set Programming Competition

LPNMR-2009, The 10th International Conference on Logic Programming and Nonmonotonic Reasoning

AI-2007, The 20th Australian Joint Conference on Artificial Intelligence

External reviewer of

Chinese Journal of Computers

Knowledge-Based Systems

Artificial Intelligence

Artificial Intelligence Review

Frontiers of Computer Science in China

International Journal of Approximate Reasoning

Soft Computing and Automation Journal

Logic Journal of the IGPL

Science China: Information Sciences

ACM Transactions on Computational Logic

Pattern recognition

Formal Aspects of Computing

Theory and Practice of Logic Programming

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