PERSONAL DETAILS

Family name, first name: Yu, Liuwen
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Research profile

I am an artificial intelligence (AI) researcher with expertise in AI reasoning, focusing on symbolic and hybrid approaches to human-level and human-centred AI in application areas like the digital transformation of law and finance.

Education and key qualifications

- **2023** Joint Doctorate in LAST-JD-RIoE-MSCA-ITN (Law, Science and Technology Joint Doctorate: Rights of Internet of Everything - funded under the EU's Marie Skłodowska-Curie Action - Innovative Training Network)

  Dissertation: *Distributed Argumentation Technology*

- **2018** MSc in Philosophy, at Zhejiang University

- **2016** BSc in Information Systems and Information Management, at Jiaxing University

Current position

- **2023 – present** Postdoctoral researcher at the Computational Law and Machine Ethics (CLAiM) group led by Dr. Réka Markovich, Department of Computer Science, University of Luxembourg

PARTICIPATION IN RESEARCH GRANTS

- **11.2024 – 10.2025** Postdoctoral researcher, DISCREASON (Formal Analysis of Discretionary Reasoning – Deontic Logic and Formal Argumentation for Modeling Discretionary Decision-making in Legal Cases), Marie Speyer Excellence grant project (PI: Dr. Réka Markovich)

- **04.2024 – 09.2024** Postdoctoral researcher, Deontic Logic for Epistemic Rights (DELIGHT), *Fonds National de la Recherche* (FNR) OPEN research, Grant No. O20/14776480

- **11.2019 – 10.2022** Doctoral researcher in Law, Science and Technology Joint Doctorate: Rights of Internet of Everything, funded under the (Horizon 2020) Marie Skłodowska-Curie Action - Innovative Training Network (LAST-JD-RIoE-MSCA-ITN), EU Grant No. 814177

FUNDING OBTAINED

- **2024** Symbolic and Explainable Regulatory AI for Finance Innovation (SERAFIN), FNR CORE (Acceptance rate: 18%, Project budget: 598K euros)

ACADEMIC SERVICE

- Program committee chair of the 5th International Workshop on Logics for New-Generation Artificial Intelligence (LNGAI 2025 Forthcoming).
- Reviewer for the 24th International Conference on Autonomous Agents and Multiagent Systems 2025 (AAMAS 2025).
- Reviewer for the 6th International Workshop on EXplainable and TRAnsparent AI and Multi-Agent Systems (EXTRAAMAS 2024).
- Program committee chair of the 2024 workshop on Causality, Agents and Large Models (CALM 2024).
- Editor of the Computer and Information Science (CCIS) post-proceedings for CALM 2024.

IMPACT

- The continuation of my work by other researchers in the field, including PhD student Vincent de Wit.

ADDITIONAL INFORMATION

Organisation of scientific meetings

- **2024** ZLAIRE workshop: vision, strategy, and research collaboration, at Zhejiang University, China
- **2024** CALM 2024 in Kyoto, Japan.
- **2023** ICR & CLAiM workshop on "Distributed Argumentation Technology"
- **2023** Zhejiang University – University of Luxembourg Joint Lab on Advanced Intelligent Systems and REasoning (ZLAIRE) kick-off workshop.

Student supervision

- **2024** Tutor for Velija Delikj's bachelor semester project on autonomous cars
- **2022 - present** Advisor for Vincent de Wit, a doctoral researcher
- **2023 - present** Advisor for master's and PhD students from Zhejiang University through ZLAIRE

Teaching profile and activities

I enjoy both **research-based teaching and foundational teaching**. My research-based teaching focuses on advanced topics in knowledge representation and reasoning, including logic and formal argumentation in AI. Additionally, I contribute to foundational education by coordinating textbook drafts and teaching core subjects in computer science such as discrete mathematics, propositional logic and first-order logic.

- **06.2025** Course on *From Logic to Argumentation in AI* at **North American Summer School in Logic, Language, and Information 2025** (NASSLI 2025 Forthcoming)
- **09.2024 – 12.2024** Master's course: *Intelligent Systems: Agents and Reasoning*

- **04.2024 – 06.2024** Doctoral course: *Introduction to Formal and Computational Argumentation*
- **04.2024 – 06.2024** Master's course: *Intelligent Agents 1*

Academic visits

- **10.2024** Department of Information Science and Media Studies, University of Bergen
- **11.2023** Computer Science Department, Cadi Ayyad University, Morocco
- **10.2023** Artificial Intelligence and Data Engineering Department, Özyeğin University, Turkey
- **07.2023** National Institute of Informatics, Tokyo, Japan
- **11.2024, 12.2023, 07.2023** Department of Informatics, Kyoto University, Japan
- **11.2024, 06.2024, 12.2023, 06.2023** Institute of Logic and Cognition, Zhejiang University, China
- **10.2022** Centre de Recherche en Informatique de Lens, France

Talks

- **01.2025** Thirteen Challenges in Formal and Computational Argumentation (invited talk), at Online Seminar on Computational Models of Argument (Forthcoming)
- **12.2024** Formal and computational argumentation in AI & law (invited talk), Ningbo University, China
- **10.2024** Three Conceptualizations of Formal Argumentation (invited talk), at the Logic & AI Seminar, University of Bergen, Norway
- **06.2024** Weakest Link, Prioritised Default Logic, and Principles in Argumentation (invited talk), at the 4th International Workshop on Logics for New-Generation Artificial Intelligence (LNGAI 2024), Zhejiang University, China
- **03.2024** Distributed Argumentation Technology (invited talk), at the 6th Madeira Workshop on Belief Revision, Argumentation, Ontologies, and Norms in Madeira, Portugal
- **11.2023** Legal and Moral Reasoning Capabilities in Intelligent Machines (invited talk), at the Computer Science Department, Cadi Ayyad University, Morocco
- **11.2023** Law, Science, and Technology in Luxembourg (invited talk), at the Computer Science Department of Cadi Ayyad University, Morocco
- **09.2023** From Distributed Argumentation Technology (DAT) to Dialogue Technology (DT), at the ZLAIRE kick-off workshop, Zhejiang University, China
- **05.2023** Principles and Practice of Formal Argumentation: Argument Strength, Acceptance, and Storage (invited talk), at Tsinghua University, China
- **05.2022** Case-based Reasoning via Comparing the Strength Order of Features, at the 4th International Workshop on EXplainable TRAnsparent AI and Multi-Agent Systems (EXTRAAMAS2022), online

- **01.2022** Enhancing Trust in Trust Services: Towards an Intelligent Human-input-based Blockchain Oracle (IHiBO), at the 55th Hawaii International Conference on System Sciences (HICSS 2022), online
- **12.2021** A Principle-Based Analysis of Abstract Agent Argumentation Semantics (invited talk), at the 5th Institute of Electrical and Electronics Engineers International Conference on Agents (IEEE ICA 2021), online
- **11.2021** A Principle-based Analysis of Abstract Agent Argumentation Semantics, at the 18th International Conference on Principles of Knowledge Representation and Reasoning (KR 2021), Italy
- **12.2020** Interpretations of Support Among Arguments, at the 33rd International Conference on Legal Knowledge and Information Systems (JURIX 2020), online
- **09.2020** The Principle-based Approach to Bipolar Argumentation, at the 18th International Workshop on Non-Monotonic Reasoning (NMR 2020), online
- **07.2020** The Principle-Based Approach to Bipolar Argumentation, at an ICR seminar at the University of Luxembourg
- **12.2019** On the Optimized Utilization of Smart Contracts in DLTs from the Perspective of Legal Representation and Legal Reasoning, at the 32nd International Conference on Legal Knowledge and Information Systems (JURIX 2019), Madrid, Spain

PUBLICATIONS

Book

1. Textbook on Formal and Computational Argumentation (in preparation)

Journal Articles

2. Yu, Liuwen; Markovich, Réka; and van der Torre, Leendert. "Thirteen Challenges in Formal and Computational Argumentation." Journal of Applied Logics (forthcoming). **Also appears in Handbook of Formal Argumentation, Vol. 3**.
3. Pardo, Pere; Yu, Liuwen; Chen, Chen; and van der Torre, Leendert. "Weakest Link, Prioritised Default Logic and Principles in Argumentation." Journal of Logic and Computation (forthcoming).
4. Yu, Liuwen; Li, Xu; and van der Torre, Leendert. "Agent Defense in Abstract Argumentation: Semantics and Principle-based Analysis." Journal of Argument & Computation (under review).
5. Yu, Liuwen; Zichichi, Mirko; Markovich, Réka; Bhattacharya, Sukriti; and Najjar, Amro. "IHiBO: Intelligent Human-Input-Based Blockchain Oracle." IEEE Access (under review).

Conference and Workshop Papers

6. De Wit, Vincent; Yu, Liuwen; Markovich, Réka; and Najjar, Amro. "Balancing (Normative) Reasons for the Intelligent Human-Input-Based Blockchain Oracle." In the Causality, Agents and Large Models 2024 (CALM 2024) workshop proceedings of the Communications in Computer and Information Science (CCIS) post-proceedings series, 2024 (forthcoming).

7. Alcaraz, Benoît; Nourbakhsh, Aria; and Yu, Liuwen. "Assessing the Robustness of LLMs in Predicting Supports and Attacks." In the Causality, Agents and Large Models 2024 (CALM 2024) workshop proceedings of the Communications in Computer and Information Science (CCIS) post-proceedings series, 2024 (forthcoming).

8. Knoks, Aleks; Shao, Muyun; van der Torre, Leendert; De Wit, Vincent; and Yu, Liuwen. "A Principle-Based Analysis for Numerical Balancing." Logics for New-Generation Artificial Intelligence (LNGAI 2024). College Publications, United Kingdom, 2024.

9. Yu, Liuwen; Al Anaissy, Caren; Vesic, Srdjan; Li, Xu; van der Torre, Leendert. "A Principle-Based Analysis of Bipolar Argumentation Semantics." In the 18th European Conference on Logics in Artificial Intelligence (JELIA). Cham: Springer Nature Switzerland, 2023.

10. Chen, Chen; Pardo, Pere; van der Torre, Leendert; Yu, Liuwen. "Weakest Link in Formal Argumentation: Lookahead and Principle-Based Analysis." In the 18th International Conference on Logic and Argumentation. Cham: Springer Nature Switzerland, 2023.

11. Pardo, Pere; van der Torre, Leendert; and Yu, Liuwen. "Advanced Intelligent Systems and Reasoning: Standardization, Experimentation, Explanation." In Logics for New Generation AI (LNGAI 2023). College Publications, London, United Kingdom, 2023.

12. Yu, Liuwen, and Gabbay, Dov. "Case-Based Reasoning via Comparing the Strength Order of Features." In the 4th International Workshop on Explainable, Transparent Autonomous Agents and Multi-Agent Systems. Cham: Springer International Publishing, 2022.

13. Yu, Liuwen; Zichichi, Mirko; Markovich, Réka; and Najjar, Amro. "Intelligent Human-Input-Based Blockchain Oracle (IHiBO)." In Proceedings of the 14th International Conference on Agents and Artificial Intelligence (ICAART 2022), pp. 1-12. SCITEPRESS, 2022.

14. Yu, Liuwen; Zichichi, Mirko; Markovich, Réka; and Najjar, Amro. "Enhancing Trust in Trust Services: Towards an Intelligent Human-Input-Based Blockchain Oracle (IHiBO)." In The 55th Annual Hawaii International Conference on System Sciences (HICSS 2022), 2022.

15. Yu, Liuwen; Zichichi, Mirko; Markovich, Réka; and Najjar, Amro. "Argumentation in Trust Services within a Blockchain Environment." In the 33rd Benelux Conference on Artificial Intelligence and the 30th Belgian Dutch Conference on Machine Learning (BNAIC/BENELEARN 2021), 2021.

16. Yu, Liuwen; Chen, Dongheng; Qiao, Lisha; Shen, Yiqi; and van der Torre, Leendert. "A Principle-Based Analysis of Abstract Agent Argumentation Semantics." In the proceedings of the 18th International Conference on Principles of Knowledge Representation and Reasoning (KR 2021), 2021.

17. Qiao, Lisha; Shen, Yiqi; Yu, Liuwen; Liao, Beishui; and van der Torre, Leendert. "Arguing Coalitions in Abstract Argumentation." In Logics for New-Generation AI 2021, pp. 93-106. College Publications, 2021.

18. Yu, Liuwen, Réka Markovich, and Leendert Van Der Torre. "Interpretations of support among arguments." Legal Knowledge and Information Systems. IOS Press, 2020. 194-203.

19. Yu, Liuwen, and Leendert Van der Torre. "A principle-based approach to bipolar argumentation." NMR 2020 Workshop Notes. Vol. 227. 2020.