DELIANG WANG

wdeliang@connect.hku.hk, (852)-54879580

EDUCATION

The University of Hong Kong   PhD in AI in Education   *September 2022 - August 2025 (Expected)*

- Research Directions: Educational Data Mining, Learning Analytics, Artificial Intelligence (AI) and Explainable AI in Educational Dialogue, Learner Models, and Teacher Models

- PhD thesis: Using AI to promote productive talk: Automatic identification, prediction explanation, and practical evaluation

- Supervisor: **Dr. Gaowei Chen** (Primary), Dr. Shihui Feng (Co-supervisor)

Beijing Normal University   MPhil in Educational Technology   *September 2019 - June 2022*

- Overall GPA: 3.9/4.0

- Research Directions: Knowledge Tracing, Explanable AI in Education

- Master thesis: Interpreting deep learning models for knowledge tracing in intelligent tutoring systems

- Supervisor: **Dr. Yu Lu**

Ocean University of China   B.S. in Educational Technology   *September 2015 - June 2019*

- Overall GPA: 3.8/4.0

- Supervisor: Dr. Weigang Lyu

PUBLICATIONS

* refers to the corresponding author and "‗" refers to the supervsior.

Peer-reviewed Journal Papers

1. **Wang, D.**, Gao, L.*, Shan, D., Chen, G., Zhang, C., & Kao, B. (2024). When tutors simultaneously instruct students from the primary, middle, and high school levels in online one-on-one tutoring: Investigating the interaction dynamics using AI, ENA, and LSA methods. *Journal of Science Education and Technology*. (Link, **SCI/SSCI, JCR Q1, IF 3.3**)

2. **Wang, D.**, Bian, C., & Chen, G*. (2024). Using explainable AI to unravel classroom dialogue analysis: Effects of explanations on teachers' trust, technology acceptance, and cognitive load. *British Journal of Educational Technology, 55,* 2530–2556. (Link, **SSCI, JCR Q1, IF 6.7**)

3. **Wang, D.***, Chen, G. (2024). Making AI accessible for STEM teachers: Using explainable AI for unpacking classroom discourse analysis. *IEEE Transactions on Education*. (Link, **SCI, JCR Q2, IF 2.1**)

4. **Wang, D.**, Zheng, Y., & Chen, G*. (2024). ChatGPT or Bert? Exploring the potential of ChatGPT to facilitate preservice teachers' learning of dialogic pedagogy. *Educational Technology & Society, 27*(3), 390-406. (Link, **SSCI, JCR Q1, IF 4.6**)

5. **Wang, D.***, Chen, G. (2024). Are perfect transcripts necessary when we analyze classroom dialogue using AIoT? *Internet of Things, 25*, 101105. (Link, **SCI, JCR Q1, IF 6.0**)

6. **Wang, D.**, Tao, Y., & Chen, G*. (2024). Artificial intelligence in classroom discourse: A systematic review of the past decade. *International Journal of Educational Research, 123*, 102275. (Link, **SSCI, JCR Q1, IF 2.6**)

7. 🏆 Guo, K., **Wang, D*.** (2024). To resist it or to embrace it? Examining ChatGPT's potential to support teacher feedback in EFL writing. *Education and Information Technologies, 29*(7), 8435–8463. (Link, **SSCI, JCR Q1, IF 4.8, ESI Highly-cited Paper**)

8. Lu, Y., **Wang, D.***, Chen, P., & Zhang, Z. (2024). Design and evaluation of trustworthy knowledge tracing model for intelligent tutoring system. *IEEE Transactions on Learning Technologies*, 1-16. (Link, **SCI/SSCI JCR Q1, IF 2.9**)

9. Woo, D. J.*, **Wang, D.**, Guo, K., & Susanto, H. (2024). Teaching EFL students to write with ChatGPT: Students' motivation to learn, cognitive load, and satisfaction with the learning process. *Education and Information Technologies*. (Link, **SSCI, JCR Q1, IF 4.8**)

10. Zheng, Y., **Wang, D.**, Xu, Y., & Li, Y. (2024). A multi-granularity learning path recommendation framework based on knowledge graph and improved ant colony optimization algorithm for e-learning. *IEEE Transactions on Computational Social Systems*. (**SCI, JCR Q1, IF 4.5**, Accepted)

11. Zheng, Y., **Wang, D.**, Zhang, J., Li, Y., Xu, Y., Zhao, Y., & Zheng, Y. (2024). A unified framework for personalized learning pathway recommendation in e-learning contexts. *Education and Information Technologies*. (**SSCI, JCR Q1, IF 4.8**, Accepted)

12. Lu, Y., **Wang, D.**, Chen, P., Meng, Q., & Yu, S*. (2023). Interpreting deep learning models for knowledge tracing. *International Journal of Artificial Intelligence in Education, 33*(3), 519-542. (Link, **IJAIED, JCR Q1, IF 4.7**)

13. Zheng, Y., Li, X., Li, Y., **Wang, D.**, & Bao, H. (2023). Personalized learning path recommendation from the perspective of artificial intelligence: mechanism,evolution, value and trend. *Modern Distance Education*. (**CSSCI, in Chinese**)

14. Lu, Y., Zhang, Z.,**Wang, D.**, & Chen, P. (2022). The study on the application mode of explainable artificial intelligent in education. *China Educational Technology, 08*:9-15.(**CSSCI, in Chinese**)

15. Lu, Y., **Wang, D.**, Zhang, Z., Chen, P., & Yu, S*. (2021). Review of knowledge tracing models in intelligent tutoring systems. *Modern Educational Technology, 31*(11): 87-95. (**CSSCI, in Chinese**)

16. Bian, C., **Wang, D.**, Liu, S., Lu, W., & Dong, J. (2019). Adaptive learning path recommendation based on graph theory and an improved immune algorithm. *KSII Transactions on Internet and Information Systems, 13*(5):2277-2298. (Link, **SCI**)

Peer-reviewed Conference Papers (Selected)

1. **Wang, D.**, Chen, G. (2024). On the interpretability of deep Learning models for collaborative argumentation analysis in classrooms. *Proceedings of the 62nd Annual Meeting of the Association for Computational Linguistics (Volume 4: Student Research Workshop)*. (Link, **ACL2024**)

2. **Wang, D.*** (2024). Opening the black box: Unraveling the classroom discourse analysis (Student Abstract). *Proceedings of the 38th Annual AAAI Conference on Artificial Intelligence*. (**AAAI2024**)

3. **Wang, D*.**, Gao, L., Niu, X., & Chen, G. (2024). When one tutor handles students from different educational levels: Their dialogic interactions in online one-on-one tutoring. *Proceedings of the 18th International Conference of the Learning Sciences*. New York, International Society of the Learning Science. (**ISLS2024**)

4. **Wang, D.***, Shan, D., Zheng, Y., & Chen, G. (2023). Teacher Talk Moves in K12 Mathematics Lessons: Automatic Identification, Prediction Explanation, and Characteristic Exploration. *Proceedings of The 24th International Conference on Artificial Intelligence in Education, AIED 2023, volumn 13916 of Lecture Notes in Computer Science,* pages 651-664. Springer, Cham. (Link, **AIED2023, Full paper**)

5. Shan, D., **Wang, D.***, Zhang, C., Kao, B., & Chan, C. (2023). Automatic Multi-label Educational Dialog Act Annotating with Data Augmentation in Online One-on-one Task-based Tutoring Dialog. *Proceedings*

of the 24th International Conference on Artificial Intelligence in Education, Posters and Late Breaking Results, Workshops and Tutorials, Industry and Innovation Tracks, Practitioners, Doctoral Consortium and Blue Sky. AIED 2023. Communications in Computer and Information Science, vol 1831. Springer, Cham. (Link, **AIED2023**)

6. **Wang, D.**, Shan, D., Zheng, Y., Guo, K., Chen, G., & Lu, Y. (2023). Can ChatGPT detect student talk moves in classroom discourse? A preliminary comparison with Bert. *Proceedings of the 16th International Conference on Educational Data Mining*, pages 515–519, Bengaluru, India, July 2023. International Educational Data Mining Society. (Link, **EDM2023**)

7. **Wang, D.**, Lu, Y*., Zhang, Z., & Chen, P. (2023). An efficient and generic method for interpreting deep learning based knowledge tracing Models. *Proceedings of the 31st International Conference on Computers in Education, ICCE 2023*, Asia-Pacific Society for Computers in Education. (**ICCE2023, Full paper, Best Student Paper Nomination**)

8. **Wang, D*.**, Tao, Y., & Chen, G. (2023). The talk move patterns of teacher-student interactions in K-12 Mathematics Lessons: An analysis based on the TalkMoves Dataset. *Proceedings of the Annual Meeting of the International Society of the Learning Sciences 2023*. Montréal, International Society of the Learning Science. (**ISLS2023**)

9. Zheng, Y., **Wang, D.**, Xu, Y., & Li, Y. (2023). A Multi-Granularity Learning Path Recommendation Framework Based on Knowledge Graph and Improved Ant Colony Optimization Algorithm for E-learning. *Proceedings of the 31st International Conference on Computers in Education, ICCE 2023*, Asia-Pacific Society for Computers in Education. (**ICCE2023**)

10. **Wang, D.**, Lu, Y., Zhang, Z., & Chen, P. (2022). A generic interpreting method for knowledge tracing models. *Proceedings of the 23rd International Conference on Artificial Intelligence in Education, AIED 2022*, pages 573-580. Springer, Cham. (Link, **AIED2022, Short paper**)

11. Lu, Y., **Wang, D.***, Meng, Q., and Chen, P. (2021). Does large dataset matter? An evaluation on the interpreting method for knowledge tracing. *Proceeding of the 29th International Conference on Computers in Education, ICCE 2021*, pages 63-68. Asia-Pacific Society for Computers in Education. (**ICCE2021, Short paper**)

12. Lu, Y., **Wang, D.**, Meng, Q., and Chen, P*. (2020). Towards interpretable deep learning models for knowledge tracing. *Proceedings of the 21st International Conference on Artificial Intelligence in Education*, pages 185-190. Springer. (Link, **AIED 2020, Short paper**)

13. Bian, C., **Wang, D.**, Liu, S., Zhang, Y., and Lu, W. (2018). Inferring academic emotion in online learning based on spontaneous facial expression. *Proceeding of the 26th International Conference on Computers in Education, ICCE 2018*, pages 83-88. Asia-Pacific Society for Computers in Education. (**ICCE2018, Short paper**)

14. Bian, C., Zhang, Y., **Wang, D.**, Liang, Y., Wu, B., and Lu, W. An Academic Emotion Database and the Baseline Evaluation. *Proceedings of the 13th International Conference on Computer Science & Education (ICCSE)*. Colombo, Sri Lanka, 2018. (ICCSE2018, Short paper)

PRESENTATIONS

- **Poster Presentation** at the 62nd Annual Meeting of the Association for Computational Linguistics (ACL2024) in August 2024 in Bangkok, Thailand: *On the interpretability of deep learning models for collaborative argumentation analysis in classrooms.*

- **Oral Presentation** at the Workshop on Explainable Artificial Intelligence (XAI) at the 33rd International Joint Conference on Artificial Intelligence (IJCAI2024) in August 2024 in Jeju, South Korea: *Can explanations increase teachers' trust and satisfaction? An empirical study.*

- **Invited Talk** at the Advanced Innovation Center for Future Education at Beijing Normal University in July 2024 in Beijing, China: *Using AI to promote productive talk.*

- **Poster presentation** at the 38th Annual AAAI Conference on Artificial Intelligence (AAAI2024) in February 2024 in Vancouver, Canada: *Opening the black box: Unraveling the Classroom Discourse Analysis.*

- **Full paper oral presentation** at the 31st International Conference on Computers in Education (ICCE2023) in December 2023 in Matsue, Japan: *An efficient and generic method for interpreting deep learning based knowledge tracing models.*

- **Full paper oral presentation** at the 31st International Conference on Computers in Education (ICCE2023) in December 2023 in Matsue, Japan: *Fostering students' dialogic engagement with the use of visual learning analytics as a teaching assistant tool in primary school classrooms.*

- **Full paper oral presentation** at the 24th International Conference on Artificial Intelligence in Education (AIED 2023) in July 2023 in Tokyo, Japan: *Teacher talk moves in K12 mathematics lessons: Automatic identification, prediction explanation, and characteristic exploration.*

- **Short paper oral presentation** at the 23th International Conference on Artificial Intelligence in Education (AIED 2022) in July 2022 online: *A generic interpreting method for knowledge tracing models.*

- **Invited paper oral presentation** at AAAI 2021 Workshop on AI in Education in February 2021 online: *Interpreting deep knowledge tracing model using EdNet dataset.*

PROJECT EXPERIENCE

- 2022 - present: Hong Kong Research Grants Council, University Grants Committee: "A Video-visualization Online Professional Development Approach for Teachers: Promoting Productive Classroom Talk and Student Learning" (Research assistant)

- 2022 - present: Innovation and Technology Commission of the Government of the HKSAR: "A Visualization-enhanced Video-based e-Learning Platform (V2 e-platform) for Teachers and Students" (Research assistant)

- 2021 - summer: Algorithm Engineer Intern in the position of Educational Measurement in Bytedance: designed and developed knowledge tracing models in an Intelligent Tutoring System and proposed to embed Elo Rating System to diagnose learners' ability.

- 2020 - Present: China National Natural Science Foundation Grant: "Interdisciplinary Concept Map based Knowledge Tracing Model and Interpretability" (Participant).

- 2019 - 2020: China National Natural Science Foundation Grant: "Multimodal Long-Term Data based Model Design for Learning Obstacle" (Participant).

- 2019 - 2021: Student Research Grant (**$5,000**) from the Faculty of Education, Beijing Normal University: "Estimation of Learners' Knowledge State towards Intelligent Tutoring System" (**Principal Investigator**).

- 2018 - 2019: MOE (Ministry of Education in China) Project of Humanities and Social Sciences: "Evaluation of Classroom Teaching based on Learners' Facial Expressions" (Participant).

- 2018 - 2019: Student Research Grant from Ocean University of China: "Adaptive Learning Path Recommendation" (Participant).

ACADEMIC SERVICE

- Reviewer for multiple SCI and SSCI journals (e.g., *Journal of Educational Data Mining, Educational Technology & Society, Education and Information Technologies, Journal of Science Education and Technology, Expert Systems with Applications, IEEE Transactions on Learning Technologies, Pattern Recogni-*

tion, Professional Development in Education, Asia Pacific Journal of Education, International Journal of Human-Computer Interaction, and International Journal of Applied Linguistics)

- 2024: Program Committee member for the international conference on artificial intelligence in education (AIED2024)

- 2024: Program Committee member for the international conference on educational data minging (EDM2024)

- 2023-2024: Program Committee member for the international conference on learning sciences (ICLS2023 & 2024)

TEACHING EXPERIENCE

Forefront Research of Education (Graduate Level)

- School of Educational Technology, Beijing Normal University

- Fall semester, September 2021 - January 2022

- **Teaching assistant** in charge of weekly tutorial sessions, including answering relevant questions, addressing technical problems, and reviewing students' assignments.

Data Structure (Undergraduate Level)

- School of Educational Technology, Beijing Normal University

- Fall semester, September 2020 - January 2021

- **Teaching assistant** in charge of weekly tutorial sessions, including answering conceptual questions, solving programming problems, and reviewing and scoring students' assignments.

Frontiers in Educational Technology (Undergraduate Level)

- School of Educational Technology, Beijing Normal University

- Spring semester, March 2020 - July 2020

- **Teaching assistant** in charge of weekly tutorial sessions, including managing class activities, answering academic questions, and reviewing students' assignments.

AWARDS AND HONORS

- 2024: AAAI2024 Scholarship and Volunteer Award (AAAI2024)

- 2023: ICCE2023 Merit Scholarship (ICCE2023)

- 2023: The scholarship from the international conference on educational data mining (EDM2023)

- 2023: The scholarship from the international conference on artificial intelligence on education (AIED2023)

- 2022-2026: Postgraduate scholarship, The University of Hong Kong

- 2020 & 2021 & 2022: the First Class Scholarship Award for Graduates

- 2019: **Outstanding Graduate of Shandong Province (5%)**, **Outstanding Student in Shandong Province (1%)**, Outstanding Bachelor Dissertation (5%), Award for Excellent Graduates in the Class of 2019

- 2018: **National Scholarship (3%)**, the First Class Scholarship Award (5%), the Outstanding Student Award, the Outstanding Student Leader Award, Scholarship Award for Participation in Social Activities

- 2017: Second Prize in Shandong Contest District in China Undergraduate Mathematical Contest in Modeling, the Inspiration Scholarship, the First Class Scholarship Award (5%), the Outstanding Student Award, the Outstanding Student Leader Award, Scholarship Award for Participation in Social Activities

- 2016: Second Prize in Shandong Province Mathematics Competition for College Students, the Inspiration Scholarship, the First Class Scholarship Award (5%), the Outstanding Student Award, Scholarship Award for Participation in Social Activities, the Sixth Bank of China Scholarship for Self-reliance, Second Prize for Band C in 2016 National English Competition for College Students

SKILLS

- **Programming Languages**: experienced in Python (**Pytorch**), C
- **English Proficiency**: GRE - 322, TOEFL - 105, IELTS - 7
- **Other**: C#, Java, SPSS, Adobe Premiere