Stanford

Karen D. Wang

Postdoctoral Scholar, Education

Bio

BIO

My research is situated at the intersection of machine learning and human cognition. In my work, I apply learning analytics and data mining techniques to students' interaction data in technology-based learning environments. The goal is to translate fine-grained behavioral data into meaningful evidence about students' cognitive and metacognitive processes. These enhanced understandings of students' mental processes and competencies are then used to guide the design of and evaluate instructional materials embedded in educational technology.

STANFORD ADVISORS

- Shima Salehi, Postdoctoral Faculty Sponsor

Teaching

COURSES

2021-22

- Learning Design and Technology Seminar: EDUC 229A (Aut)
- Learning Design and Technology Seminar: EDUC 229B (Win)
- Learning Design and Technology Seminar: EDUC 229C (Spr)
- Learning Design and Technology Seminar: EDUC 229D (Sum)

Publications

PUBLICATIONS

- **Exploring the learning experiences of neurodivergent college students in STEM courses** *JOURNAL OF RESEARCH IN SPECIAL EDUCATIONAL NEEDS*
  Wang, K. D., Mccool, J., Wieman, C.
  2024

- **Examining the potential and pitfalls of ChatGPT in science and engineering problem-solving** *FRONTIERS IN EDUCATION*
  Wang, K. D., Burkholder, E., Wieman, C., Salehi, S., Haber, N.
  2024; 8

- **Impact of Prompting Engineering Undergraduates to Reflect on Their Problem-Solving Skills** *INTERNATIONAL JOURNAL OF ENGINEERING EDUCATION*
  Salehi, S., Wang, K. D., Flynn, M., Wieman, C.
  2023; 39 (2): 653-667

- **A systematic review of empirical studies using log data from open-ended learning environments to measure science and engineering practices** *BRITISH JOURNAL OF EDUCATIONAL TECHNOLOGY*

Wang, K. D., Cock, J., Kaeser, T., Bumbacher, E.

2022

- **Validated diagnostic test for introductory physics course placement** *PHYSICAL REVIEW PHYSICS EDUCATION RESEARCH*

  Burkholder, E., Wang, K., Wieman, C.

  2021; 17 (1)

- **Examining the Links between Log Data and Reflective Problem-solving Practices in An Interactive Task**

  Wang, K., Nair, K., Wieman, C., Assoc Comp Machinery

  ASSOC COMPUTING MACHINERY.2021: 525-532

- **Can Majoring in Computer Science Improve General Problem-solving Skills?**

  Salehi, S., Wang, K. D., Toorawa, R., Wieman, C., ASSOC COMP MACHINERY

  ASSOC COMPUTING MACHINERY.2020: 156-161

- **Factors Contributing to Anesthesia Residents' Learner Engagement and Learning Experience in a Mobile App: A Mixed-Method Design Study**

  Traynor, A., Wang, K., Ngai, L., Chu, L.

  LIPPINCOTT WILLIAMS & WILKINS.2017: 102–3