

Jianfeng Zhu

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🌐 LinkedIn

🎓 Education Background

- Jan.2020 - Present 📖 **Ph.D. Candidate in Computer Science**, Kent State University.
Thesis title: *Bidirectional Influences Between Social Media and Adolescent Substance Use: A Hierarchical Profiling Approach*.
Advisor: *Prof. Ruoming Jin*
- Jan.2017 - Dec. 2019 📖 **M.A. in Digital Sciences**, Kent State University.
Relevant Coursework: *Probabilistic Data Management, Project Management and Team Dynamic, Data Science, Knowledge Organization Systems*.
- Sept. 2009 - June. 2014 📖 **Ph.D. & M.A. in Information Science**, Wuhan University.
Thesis title: *Using DEA models to measure the performance of public culture services in China*.
- Aug. 1996 - June. 2000 📖 **B.A. in Computer Science**, Wuhan University.
Relevant Coursework: *Data Structure, Operating System, Statistic Theory*.

💻 Employment History

- Jan. 2024 – Present 📖 **Part-Time Research Assoc.** College of Public Health, Kent State University
- Jan. 2021 - Dec. 2023 📖 **Research Assistant.** Department of Computer Science, Kent State University
- Jan. 2019 - May. 2019 📖 **Internship.** School of Communication Studies, Kent State University
- Aug. 2018 - Dec. 2018 📖 **Internship.** Office of Global Education, Kent State University
- Jul. 2000 - Dec. 2016 📖 **lecture Instructor.** Hubei University of Economics, China

? Research Interests

- 📖 Artificial Intelligence | Machine Learning | Natural Language Processing
- 📖 Health Informatics | Public Health
- 📖 Software Engineering & Programming Languages

🧩 Research Experiences

📖 Public Health & Social Media Analysis:

- Analyzed large-scale Twitter/X data to categorize drug abuse related content.
- Developed deep learning models to identify substance use trends and behavioral patterns.
- Generated insights informing public health interventions.

This research is supported by SAMHSA Grant 1H79SP081502 and supervised by Prof. Ruoming Jin and Prof. Deric Kenny (Center of Public Health and Policy)

Key outcomes: [11][10][12]

Research Experiences (continued)

📌 Mental Health & Crisis Dynamics:

- Examined 2M+ Reddit posts, revealing a 28-day post-lockdown crisis window and highlighting economic stress and social isolation.
- Leveraged LLMs to analyze 32,674 substance use posts, identifying seven thematic frames with distinct emotional profiles.
- Identified gender-specific antidepressant side-effect patterns via Reddit/Ask a Patient.

This research is supported by NSF Grants IIS-2041065 (Title: Understanding Human Behaviors and Mental Health using Federated Machine Learning on Smart Phones.)

Key outcomes: [1][7][13][14][3][4]

📌 LLMs for Psychological Profiling:

- Analyzed 500 SCID-based interviews with LLM embeddings to uncover sentiment, emotion, memory, and personality features contributing to mental health.
- Developed LLM-based Big Five trait inference (BFI-10 prompts) to improve predictive accuracy.
- Created a hierarchical (macro/meso/micro) user profile framework, advancing AI-driven psychological insights and interventions.

Key outcomes: [5][6]

📌 LLM-Driven HPC Resilience Optimization:

- Developed LLM/ML techniques to enhance HPC resilience.
- Built contextual code analysis models with embedding strategies to predict HPC code faults.
- Evaluated LLMs' capacity to interpret IRs, advancing software engineering automation.

Key outcomes:[8][9][2]





Research Publications

Publications Selected

- 1 E. Dan, **Zhu, J.**, and R. Jin, "Thematic analysis of discourse on reddit: Insights of suicide factors from sentiment and textual analysis," *ACM Transactions on the Web*, 2025, (TWEB is recognized as a top journal for research on web technologies, ranking in Q2 with an Impact Factor of 2.6.)
- 2 H. Jiang, **Zhu, J.**, and B. Fang, "Can large language models understand intermediate representations?" In *Proceedings of the 42nd International Conference on Machine Learning (ICML)*, Submitted, 2025.
- 3 X. Zhang and **Zhu, J.**, "The impact of validation seeking on self-image and internalized stigma among self- vs. clinically diagnosed individuals on r/adhd," Submitted, 2025.
- 4 X. Zhang, Y. J. Oh, Y. Zhang, and **Zhu, J.**, "Seeking validation in the digital age: The impact of validation seeking on self-image and internalized stigma among self- vs. clinically diagnosed individuals on r/adhd," in *Proceedings of the 75th Annual Conference of the International Communication Association (ICA)*, International Communication Association, Denver, Colorado, USA, Jun. 2025.
- 5 **Zhu, J.**, R. Jin, and K. G. Coifman, "Investigating large language models in inferring personality traits from user conversations," *arXiv preprint*, vol. arXiv:2501.07532, 2025.
- 6 **Zhu, J.**, R. Jin, H. Jiang, Y. Wang, X. Zhang, and K. G. Coifman, "Leveraging large language models to analyze emotional and contextual drivers of teen substance use in online discussions," *arXiv preprint*, vol. arXiv:2501.14037, 2025.

- 7 **Zhu, J.**, R. Jin, H. Jiang, X. Zhang, and D. R. Kenne, "Probing public perceptions of antidepressants on social media: A mixed methods approach," *JMIR Formative Research*, 2025, (A reputable journal in digital health and informatics, with an Impact Factor of 2.0).  DOI: 10.2196/62680.
- 8 H. Jiang, **Zhu, J.**, B. Fang, *et al.*, "Happa: A modular platform for hpc application resilience analysis with llms embedded," in *2024 43rd International Symposium on Reliable Distributed Systems (SRDS)*, IEEE, Sep. 2024, pp. 40–51.
- 9 H. Jiang, **Zhu, J.**, B. Fang, C. Chen, and Q. Guan, "Investigating resilience of loops in hpc programs: A semantic approach with llms," in *Proceedings of the 28th Annual IEEE High Performance Extreme Computing Virtual Conference*, Sep. 2024.
- 10 M. Julina, R. Jin, J. King, **Zhu, J.**, and D. Kenne, "Differential analysis of age, gender, race, sentiment, and emotion in substance use discourse on twitter during the covid-19 pandemic: An nlp approach," *Preprint*, Oct. 2024.  DOI: 10.2196/preprints.67333.
- 11 M. Julina, **Zhu, J.**, K. Jennifer, P. Hai, K. Deric, and R. Jin, "Identifying patterns of substance abuse in tweets using deep learning model during covid-19," *JMIR Preprints*, Apr. 2024.  DOI: 10.2196/preprints.59076.
- 12 X. Zhang, **Zhu, J.**, D. R. Kenne, and R. Jin, "Substance use discussions among teenagers on reddit: Frames and emotions," *JMIR Preprints*, Apr. 2024, (**Journal of Medical Internet Research** , Q1, (Impact Factor: 5.8, 2024)).  DOI: 10.2196/59338.
- 13 **Zhu, J.**, R. Jin, K. Deric, H. Phan, and W. S. Ku, "User dynamics and thematic exploration in r/depression during covid-19: Insights from overlapping r/suicidewatch users," *Journal of Medical Internet Research*, 2024, (**Journal of Medical Internet Research** , Q1, (Impact Factor: 5.8, 2024)).  DOI: 10.2196/53968.
- 14 **Zhu, J.**, N. Yalamanchi, R. Jin, D. R. Kenne, and N. Phan, "Investigating covid-19's impact on mental health: Trend and thematic analysis of reddit users' discourse," *Journal of Medical Internet Research*, vol. 25, e46867, 2023, (**Journal of Medical Internet Research** , Q1, (Impact Factor: 5.8, 2024)).  DOI: 10.2196/46867.
- 15 L. Duan, T. Hu, E. Cheng, **Zhu, J.**, and C. Gao, "Deep convolutional neural networks for spatiotemporal crime prediction," in *Proceedings of the International Conference on Information and Knowledge Engineering (IKE)*, The Steering Committee of The World Congress in Computer Science, Computer Engineering and Applied Computing (WorldComp), 2019, pp. 61–67.
- 16 K. Hu and **Zhu, J.**, "A progressive web application on ancient roman empire coins and relevant historical figures with graph database," in *Digital Heritage. Progress in Cultural Heritage: Documentation, Preservation, and Protection. EuroMed 2018*, M. e. a. Ioannides, Ed., ser. Lecture Notes in Computer Science, vol. 11197, Springer, 2018.
- 17 S. Wang, E. Cheng, **Zhu, J.**, C. Fu, and W. Wang, "Using dea models to measure the performance of public culture services in china," in *2016 International Conference on Computational Science and Computational Intelligence (CSCI)*, 2016, pp. 447–452.  DOI: 10.1109/CSCI.2016.0091.

Skills



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|-------------------|---|
| Coding: |  Java, PHP, Python, R, SQL, XML/XSL, JavaScript, Apache Web Server, Tomcat Web Server |
| Machine Learning: |  TensorFlow, Anaconda, Networkx, CUDA |
| Data Analysis: |  Regression, Factor Analysis, Structural Equation Modeling, Content Analysis, Critical Discourse Analysis, Topic Modeling, Thematic Analysis |
| Skills: |  L ^A T _E X, Git, LLMs Training |

Miscellaneous Experience

Awards and Achievements

- 2017-2018  **DSCI-Director's Scholarship** DSCI-Director's Scholarship, Kent State University
- 2013  **First Prize in the Youth Teaching Competition**, Hubei University of Economics.

Certification

- 2014  **Introduction to TensorFlow for Artificial Intelligence, Machine Learning, and Deep Learning**. Awarded by Coursera.
- 2006  **Natural Language Processing in TensorFlow**. Awarded by Coursera.