Junhua Ding

The Anuradha & Vikas Sinha Department of Data Science
University of North Texas
Denton, TX 76203

RESEARCH INTERESTS

AI, Software Security, Software Engineering, Biomedical Computing, Quantum computing

EDUCATION

Ph.D., Computer Science
Florida International University, Miami, FL — April 2004

M.S., Computer Science
Florida International University, Miami, FL — July 2000

PhD Student, Computer Science
Nanjing University, Nanjing, Jiangsu, China — July 1997-July 1998

M.Eng., Computer Science
Nanjing University, Nanjing, Jiangsu, China — July 1997

B.S., Computer Science
China University of Geosciences, Wuhan, Hubei, China — July 1994

Diploma, Geochemistry (minor in Marketing)
Nanjing School of Geology, Nanjing, Jiangsu, China — July 1990

PROFESSIONAL EXPERIENCE

University of North Texas, Denton, TX — January 2025 – date
Anuradha & Vikas Sinha Dept. of Data Science, — Founding Chair & Reinburg Endowed Professor

I recently led the establishment of the $2.2 million Sinha Data Science Innovation Lab, and our department was recognized as UNT's 2025 Outstanding Department, the only academic department to receive this distinction that year. In addition, our master's program was named UNT Outstanding Program and ranked #2 nationally by Fortune in 2024 and #5 in 2025.

University of North Texas, Denton, TX — August 2018 – December 2024
Department of Information Science — Professor, Reinburg Endowed Professor (since 9/21)

As the founding director and first faculty member of the Data Science program at the University of North Texas, I led the creation of the B.S., M.S., and Ph.D. programs, growing enrollment from four students in 2018 to more than 750 by Spring 2025. I recruited all 15 additional faculty members and 9 affiliated faculty members, and built a nationally recognized department. I have secured multi-million-dollar external funding, including over $1.0 million as PI from federal agencies and more than $500,000 from industry, received multiple awards for research, teaching, service, and leadership, and led a research group publishing in top venues such as EMNLP, ICCV, and ICDM. My Ph.D. graduates have gone on to positions at Google and tenure-track appointments at R1 universities.

East Carolina University, Greenville, NC — August 2013 – August 2018
Department of Computer Science — Associate Professor

East Carolina University , Greenville, NC — August 2007 – August 2013
Department of Computer Science — Assistant Professor

As the first full-time faculty member of the software engineering program at ECU, I helped establish the first master's program in Software Engineering in North Carolina. Additionally, I was a core team member in building the master's program in Data Science. I also established the first NSF REU site at ECU and was awarded as ECU Scholar Teacher in 2024, and named an ECU Scholar in 2017.

From September 2012 to April 2013, I served as the Director of the Center of Cell Analysis at the Suzhou Institute of Biomedical Engineering & Technology, Chinese Academy of Sciences. In this role, I led a team of 12 research scientists and developed a prototype of an affordable flow cytometer.

Johnson & Johnson, Rochester, NY — January 2006 – August 2007
Ortho Clinical Diagnostics — Senior Engineer

Project management and product development of clinical diagnostic systems and medical information management systems.

Beckman Coulter Inc. Miami, FL — May 2000 – January 2006
Senior Software Engineer

Software development and technical lead of building software applications, embedded systems and algorithms for clinical diagnostic and biomedical research systems.

SELECTED PUBLICATIONS

Journals

1. Haihua Chen, Ruochi Li, Ana Cleveland, **Junhua Ding***, "Enhancing Data Quality in Medical Concept Normalization through Large Language Models", *Journal of Biomedical Informatics*, May, 2025, 165:104812. doi:10.1016/j.jbi.2025.104812.
2. Zhongyi Wang, Na Wang, Haoxuan Zhang, Zeren Wang, Zhou Wang, **J. Ding**, Haihua Chen, "IBID-CCT: A Novel Model for Interdisciplinary Breakthrough Innovation Detection based on Cusp Catastrophe Theory", *Information Processing & Management*, vol.62 (4), July 2025. DOI: https://doi.org/10.1016/j.ipm.2025.104121
3. Kate Kargozari, **J. Ding**, & H. Chen, "Empowering Consumer Decision-Making: Decoding Incentive vs. Organic Reviews for Smarter Choices Through Advanced Textual Analysis". Electronics, 2024 13(21), 4316. DOI: https://doi.org/10.3390/electronics13214316
4. Zhongyi Wang, Haoxuan Zhang, Haihua Chen, Yunhe Feng and **J. Ding**,"Content-based Quality Evaluation of Scientific Papers using Coarse Feature and Knowledge Entity Network", in *Journal of King Saud University: Computer and Information Sciences*, 36.6 (2024): 102119. DOI: https://doi.org/10.1016/j.jksuci.2024.102119
5. Fengjiao Tu, Linjing Wu, Kinshuk, **J. Ding**, Haihua Chen, "Exploring the Influence of Regulated Learning Processes on Learners' Prestige in Project-based Learning", in *Education and Information Technologies*, 2024, DOI: doi.org/10.1007/s10639-024-12870-1.
6. Zhongyi Wang, Xueyao Qiao, Jing Chen, Lina Li, Haoxuan Zhang, **J. Ding**, Haihua Chen, "Exploring and evaluating the index for interdisciplinary breakthrough innovation detection", in *The Electronic Library*, 2024. DOI: https://doi.org/10.1108/EL-06-2023-0141
7. H. Nguyen, H. Chen, J. Chen, K. Kargozari, **J. Ding***, "Construction and evaluation of a domain-specific knowledge graph for knowledge discovery", in *Information Discovery and Delivery.* vol. 51 No. 4, pp. 358-370, February 2023, DOI: 10.1108/IDD-06-2022-0054.
8. H. Zhang, A. Yang, A. Peng, L. F. Pieptea, J. Yang and **J. Ding***, "A Quantitative Study of Software Reviews Using Content Analysis Methods," in *IEEE Access*, vol. 10, pp. 124663-124672, 2022, doi: 10.1109/ACCESS.2022.3224048.

9. H. Chen, L. Pieptea, and **J. Ding***, "Construction and Evaluation of a High-Quality Corpus for Legal Intelligence Using Semiautomated Approaches", *IEEE Transactions on Reliability*, pp. 1-17, 2022, doi: 10.1109/TR.2022.3156126.
10. N. Tran, H. Chen, J. Bhuyan and **J. Ding***, "Data Curation and Quality Evaluation for Machine Learning-Based Cyber Intrusion Detection", *IEEE Access*, 2022, doi: 10.1109/ACCESS.2022.3211313.
11. N. Tran, H. Chen, J. Jiang, J. Bhuyan, **J. Ding***, "Effect of Class Imbalance on the Performance of Machine Learning-based Network Intrusion Detection", *Int. J. of Performability Engineering*, 2021, vol.17(9): 741-755. doi: 10.23940/ijpe.21.09.p1.741755
12. H. Chen, L. Wu, J. Chen, W. Lu, **J. Ding***, "A comparative study of automated legal text classification using random forests and deep learning", *Information Processing & Management*, Vol. 59(2), 2021. https://doi.org/10.1016/j.ipm.2021.102798.
13. H. Chen, J. Chen, **J. Ding***, "Data Evaluation and Enhancement for Quality Improvement of Machine Learning", *IEEE Trans. in Reliability*, Volume: 70, Issue: 2, June 2021. DOI: 10.1109/TR.2021.3070863
14. Z. Zeng, Y. Shi, L. Pieptea, **J. Ding***, "Using latent features for building an interpretable recommendation system", *The Electronic Library*, May 2021. DOI:10.1080/13658816.2019.1603387.
15. **J. Ding***, X. Li, X. Kang, V. Gudivada, "A Case Study of the Augmentation and Evaluation of Training Data for Deep Learning", *ACM Journal of Data and Information Quality*, 11, 4, Article 20 (August 2019). https://doi.org/10.1145/3317573.
16. Sha Zhou, R. Wang, **J. Ding**, X. Pan, S. Zhou, F. Fang, W. Zhen, "An Approach for Computing Routes without Complicated Decision Points in Landmark-based Pedestrian Navigation", *International Journal of Geographical Information Science*, April, 2019. https://doi.org/10.1080/13658816.2019.1603387.
17. B. Bohara, J. Bhuyan, F. Wu, and **J. Ding**, "Enhancing the effectiveness of intrusion detection system in cybersecurity through data clustering", *International Journal of Network Security & Its Applications (IJNSA)*, Vol. 12, No.1, January 2020, DOI: 10.5121/ijnsa.2020.12101.
18. V. N. Gudivada, A. Apon, and **J. Ding**, "Data Quality Considerations for Big Data and Machine Learning: Going Beyond Data Cleaning and Transformations", *International Journal on Advances in Software*, Vol. 10, no. 1&2, June 2017.
19. W. Wang, J. Liu, J.Q. Lu, **J. Ding**, X. Hu, "Resolving power of diffraction imaging with an objective: a numerical study", *Optics Express*, Vol. 25, Issue 9, pp. 9628-9633, 2017. DOI: 10.1364/OE.25.009628.
20. **J. Ding***, X. Hu, V. Gudivada, "A Machine Learning Based Framework for Verification and Validation of Massive Scale Image Data", *IEEE Transactions on Big Data*, Volume 7(2), pages: 451-467, June 1 2021. DOI: 10.1109/TBDATA.2017.2680460.
21. **J. Ding***, X. Hu, "Application of Metamorphic Testing Monitored by Test Adequacy in a Monte Carlo Simulation Program", *Software Quality Journal*, 2016. DOI: 10.1007/s11219-016-9337-3.
22. H. Wang, Y. Feng, Y. Sa, J. Q. Lu, **J. Ding***, J. Zhang, X. Hu, "Pattern recognition and classification of two cancer cell lines by diffraction imaging at multiple pixel distances", *Pattern Recognition*, vol. 61, January 2017. pp. 234-244. http://dx.doi.org/10.1016/j.patcog.2016.07.035.
23. X. Liang, M. Li, J. Lu, C. Huang, Y. Feng, Y. Sa, **J. Ding**, X. Hu, "Spectrophotometric determination of turbid optical parameters without integrating sphere", *Applied Optics*, Vol. 55, Issue 8, pp. 2079-2085, 2016.
24. J. Zhang, Y. Feng, W. Jiang, J. Lu, Y. Sa, **J. Ding**, X. Hu, "Realistic optical cell modeling and diffraction imaging simulation for study of nuclear effect", *Optical Express*, 24, pp. 366-377, Jan., 2016.
25. W. Jiang, J. Lu, L. Yang, Y. Sa, Y. Feng, **J. Ding**, X. Hu, "Comparison Study of Distinguishing Cancerous and Normal Prostate Epithelial Cells by Confocal and Polarization Diffraction Imaging", *Journal of Biomedical Optics*, 12, 071102, Nov. 2015.
26. **J. Ding***, W. Song, D. Zhang, "Modeling and Analysis of Mobile Notification Services using Petri Nets", *Intl. Journal of Service Computing (IJSC)*, vol. 2(4), 2014, pp.52-64. 2014.
27. B. Yang, C. Yang, Y. Sa, **J. Ding**, M. Li, X. Liang, Y. Feng, X. Hu, "Experimental and Simulation Studies of Heterogeneous Turbid Phantoms by Multispectral Reflectance Imaging", *Journal of Optoelectronics, Laser*, Vol.25, No.12, pp. 2437-2446, Dec., 2014.
28. J. Wang, X. Zhou, **J. Ding***, "Software Architectural Modeling and Verification: A Petri Net and Temporal Logic Approach", *Transactions of the Institute of Measurement and Control*, Vol. 33, pp. 168-181, 2011.

29. **J. Ding***, X. He, "Formal Specification and Analysis of an Agent-Based Medical Image Processing System", *International Journal of Software Engineering and Knowledge Engineering*, Vol. 20, No. 3, pp. 311-345, 2010.
30. **J. Ding***, P. J. Clarke, G. Argote-Garcia, X. He,"A Methodology for Evaluating Test Adequacy Coverage Criteria of High Level Petri Nets", *Journal of Information and Software Technology*, 51(11): pp. 1520-1533, 2009.
31. K. M. Jacobs, L. V. Yang, **J. Ding***, A. E. Ekpenyong, R. Castellone, J. Q. Lu, X.H. Hu, "Diffraction Imaging of Spheres and Melanoma Cells with a Microscope Objective", *Journal of Biophotonics*, 2, pp. 521-527, 2009.
32. **J. Ding***, P.J. Clarke, D. Xu, X. He, and Y. Deng, "A Formal Model-Based Approach for Developing an Interoperable Mobile Agent System", *The Multi-Agent and Grid Systems - An International Journal*, No.4, Vol. 2, pp. 401-412, 2006.
33. **J. Ding***, D. Xu, X. He, and Y. Deng,"Modeling and Analyzing a Mobile Agent-based Clinical Information System", *International Journal of Intelligent Control and Systems*, Vol.10, No.2 pp. 143-151, 2005.
34. P.J. Clarke, **J. Ding**, B.A. Malloy, and D. Babich,"A Tool to Automatically Map Implementation-based Testing Techniques to Classes", *International Journal of Software Engineering and Knowledge Engineering*, Vol. 16, No. 4, pp.585-614, 2006.
35. X. He, H. Yu, T. Shi, **J. Ding**, and Y. Deng, "Formally Specifying and Analyzing Software Architectural Specifications Using SAM", *Journal of Systems and Software*, vol.71, no.1-2, pp.11-29, 2004.
36. D. Xu, J. Yin, Y. Deng, and **J. Ding**, "A Formal Architectural Model for Logical Agent Mobility", *IEEE Transactions on Software Engineering*, Vol. 29, no.1, pp.31-45, 2003.
37. D. Yang, **J. Ding**, and J. L*ü*, "The Research on Dictionary Management Methods in Software Requirements Analysis Automation Systems", *Computer Software & Applications*, April, 1998
38. **J. Ding***, S. Sun, D. Yang, and J. L*ü*, "Multi-view Requirements Specification and Verification", *Computer Research & Development,* March 1998.
39. **J. Ding***, H. Dong, D. Wu, and J. L*ü*. "Software Interoperability: A Comparison Study of CORBA and Other Approaches", *Computer Research and Development*, vol. 35(7):577-583, July 1998.
40. X. Li, H. Dong, **J. Ding**, and J. L*ü*, "The Security on Software Agents", *Computer Science*, May 1998.
41. S. Sun, D. Yang, **J. Ding**, and J. L*ü*, "The Transformation from Requirements Definitions to Z State Spaces and Functional Specifications", *Computer Research & Development*, Dec.1997.

Refereed Conference Papers

42. Mingchen Li, Hanzhi Zhang, Heng Fan, **J. Ding**, Yunhe Feng, "Harmful Factuality: LLMs Correcting What They Shouldn't", The 19^{th} Conference of the European Chapter of the Association for Computational Linguistics (EACL), Rabat, Morocco, March 24-29, 2026 (Accepted)
43. Haoxuan Zhang, Ruochi Li, Sarthak Shrestha, Shree Harshini Mamidala, Revanth Putta, Arka Krishan Aggarwal, Ting Xiao, Junhua Ding and Haihua Chen, "ReviewGuard: Enhancing Deficient Peer Review Detection via LLM-Driven Data Augmentation", ACM/IEEE JCDL 2025. Dec. 2025.
44. S M Saiful Islam Badhon, Serdar Bozdag, Mohammad Adibuzzaman, Ana D. Cleveland, **J. Ding**, and K.S.M. Tozammel Hossain, "Temporal Concept Tracing: Making Deep Learning Predictions Interpretable and Actionable for ICU Acute Kidney Injury Prevention", the Secure, Uncertainty-aware, Robust, and Explainable AI for Health (Secure AI4H) Symposium at the AAAI 2025 Fall Symposium Series (FSS-25).
45. Ruochi Li, Haoxuan Zhang, Edward Gehringer, Ting Xiao, **J. Ding**, and Haihua Chen, "Unveiling the Merits and Defects of LLMs in Automatic Review Generation for Scientific Papers", Best Poster Award (Regular Paper Session), ICDM 2025, Washington D.C.
46. Xiaoying Song, Anirban Saha Anik, Dibakar Barua, Pengcheng Luo, **Junhua Ding**, Lingzi Hong, "Speaking at the Right Level: Literacy-Controlled Counterspeech Generation with RAG-RL", EMNLP 2025. Suzhou, China.
47. Mingchen Li, Heng Fan, Song Fu, **Junhua Ding**, Yunhe Feng, "DP-GTR: Differentially Private Prompt Protection via Group Text Rewriting", EMNLP 2025. Suzhou, China.

48. Yifan Jiao, Yunhao Li, **J. Ding**, Qing Yang, Song Fu, Heng Fan, Libo Zhang, "GSOT3D: Towards Generic 3D Single Object Tracking in the Wild", 2025 International Conference on Computer Vision (ICCV 2025), Oct. 19 - 23, Honolulu, Hawai'i.
49. Hesam Akbari, Wael Korani, **J. Ding**, Reza Rostami, Reza Kazemi, "UNT-AT: A Robust Software to Predict the Outcome of Depression Therapies Using EEG Signals", 31st International Conference on Neural Information Processing (ICONIP2024), Auckland, New Zealand, Dec. 2- 6, 2024.
50. Hesam Akbari, Wael Korani, **J. Ding**, Reza Rostami, Reza Kazemi, "TOP-EEG: a robust software to predict the outcomes of therapies for depression using EEG signals in DGMD domain", 31st International Conference on Neural Information Processing (ICONIP2024), Auckland, New Zealand, Dec. 2-6, 2024.
51. **J. Ding***, Huyen Nguyen, Haihua Chen, "Evaluation of Question-Answering Based Text Summarization using LLM", 2024 IEEE Intl. Conference on AI Testing, July 15-18, 2024, Shanghai, China.
52. A. Arbaz, H. Fan, **J. Ding**, M. Qiu, and Y. Feng, "GenFlowchart: Parsing and Understanding Flowchart Using Generative AI", The 17th International Conference on Knowledge Science, Engineering and Management (KSEM 2024), August 16-18th, 2024, Birmingham, UK.
53. Yuhan Zhou, Fengjiao Tu, Kewei Sha, **J. Ding**, Haihua Chen, "A Survey of Data Quality Evaluation and Tools for Machine Learning", 2024 IEEE Intl. Conference on AI Testing, Juy 15-18, Shanghai, China.
54. **J. Ding***, Haihua Chen, Sai Kolapudi, Lavanya Pobbathi and Huyen Nguyen, "Quality Evaluation of Summarization Models for Patent Documents", The 23rd IEEE International Conference on Software Quality, Reliability, and Security, October 23-26, 2023. Chiang Mai, Thailand.
55. Wenqian Zhao, Meghana Patibandla, **J. Ding***, "An Approach for Ensuring the Privacy in Smart Contracts", The 23rd IEEE International Conference on Software Quality, Reliability, and Security, October 23-26, 2023. Chiang Mai, Thailand.
56. Colton Clemmer, **J. Ding**, Yunhe Feng, "PreciseDebias: An Automatic Prompt Engineering Approach for Generative AI to Mitigate Image Demographic Biases", 2024 IEEE/CVF Winter Conference on Applications of Computer Vision (WACV 2024), Jan. 4-8, Waikoloa, Hawaii.
57. K. Kargozari, **J. Ding***, H. Chen, "Evaluating the impact of Incentive/Non-incentive Reviews on Customer Decision Making", 2023 IEEE Intl. Conference on Artificial Intelligence Testing, Athens, Greece, July 17-20, 2023. (Best paper award).
58. H. Nguyen, H. Chen, R. Maganti, T. Hossain and **J. Ding***, "Measurement and Identification of Informative Reviews for Automated Summarization", 2023 IEEE Intl. Conference on Artificial Intelligence Testing, Athens, Greece, July 17-20, 2023.
59. H. Nguyen, **J. Ding***, "Keyword-based Augmentation Method to Enhance Abstractive Summarization for Legal Documents", Intl. Conference on Artificial Intelligence and Law (ICAIL 2023), Braga, Portugal, June 19-23, 2023.
60. M. Tang, Z. Xu, Y. Qin, C. Su, Y. Zhu, F. Tao and **J. Ding***, "A Quantitative Study of Impact of Incentive to Quality of Software Reviews", IEEE Intl. Conf. on Dependable Systems and Their Applications (DSA), Wulumuqi, China, August 4-5, 2022.
61. C. Qin, Y. Yang, H. Chen and **J. Ding***, "A Comparison Study of Machine Learning and Deep Learning for Legal Contract Understanding", *JURISIN 2021: 15 Intl. Workshop on Juris-informatics*, Tokyo, Japan, Nov. 13-15, 2021.
62. H. Nguyen, H. Chen, B. Prasada, H. Zhao, **J. Ding**, J. Chen, A. Cleveland, "UNTIIA Lab at TREC 2021 - Clinical Trial", *2021 TREC conference*, 2021.
63. M. Tang, C. Su, H. Chen, J. Qu, and **J. Ding***, "SALKG:A Semantic Annotation System for Building a High-quality Legal Knowledge Graph", *The Fourth Annual Workshop on Applications of Artificial Intelligence in the Legal Industry with IEEE BigData 2020*, Online, December 10 -13, 2020.
64. **J. Ding***, J. Chen, A. Palmer, and D. Smith, "An Experience Report for Running an REU Program in an iSchool", *iConference 2020*, March 23-26, 2020, Boras, Sweden. https://doi.org/10.1007/978-3-030-43687-2_41.
65. H. Chen, G. Cao, J. Chen, **J. Ding***, "A Practical Framework for Evaluating the Quality of Knowledge Graph", In: Zhu X., Qin B., Zhu X., Liu M., Qian L. (eds) *Knowledge Graph and Semantic Computing: Knowledge Computing and Language Understanding.* CCKS 2019. Communications in Computer and Information Science, vol 1134. 2019, Hangzhou, China. DOI: 10.1007/978-981-15-1956-7_10.

66. **J. Ding***, X. Li, X. Hu, "Testing Scientific Software with Invariant Relations: A Case Study",*19th IEEE Conference on Software Quality, Reliability, and Security*, July 22-26, 2019. Sofia, Bulgaria. DOI: 10.1109/QRS.2019.00057.
67. **J. Ding***, X. Li, "An Approach for Validating Quality of Datasets for Machine Learning", *4th Intl. Workshop on Methodologies to Improve Big Data Projects with IEEE Big Data 2018*, Dec. 11, 2018. Seattle, WA.
68. **J. Ding***, X. Li, V. Gudivada, "Augmentation and Evaluation of Training Data for Deep Learning", *2017 Workshop on Data Quality Issues in Big Data and Machine Learning Applications with IEEE Big Data 2017*, Dec. 11-14, 2017, Boston, MA.
69. X. Kang, X. Zhao, C. Guo, **J. Ding***, "An Approach for Detecting Groundwater Runoff Connectivity using Cluster Analysis", *2017 IEEE Intl. Conference on Systems, Man, and Cybernetics (SMC2017)*, Oct. 5-8, 2017, Banff, Canada.
70. S. Vilkomir, J. Wang, N. L. Thai, **J. Ding***, "Combinatorial Methods of Feature Selection for Cell Image Classification", *IEEE Intl. Workshop on Combinatorial Testing and its Applications (CTA 2017)*, July 25-29, Prague, Czech.
71. **J. Ding***, J. Wang, X. Kang, X. Hu, "Building an SVM Classifier for Automated Selection of Big Data", *6th IEEE International Congress on Big Data (BigData Congress 2017)*, June 25 - June 30, 2017, Honolulu, Hawaii.
72. **J. Ding***, X. Kang, X. Hu, V. Gudivada, "Building A Deep Learning Classifier for Enhancing a Biomedical Big Data Service", *14th IEEE International Conference on Services Computing (SCC2017)*, June 25 - June 30, 2017, Honolulu, Hawaii.
73. **J. Ding***, X. Kang, X. Hu, "Validating a Deep Learning Framework by Metamorphic Testing", *2^{nd} Workshop on Metamorphic Testing with ICSE 2017*, May 20-28, 2017, Buenos Aires, Argentina.
74. **J. Ding***, "An Approach for Modeling and Analyzing Dynamic Software Architectures", *12th Intl. Conf. on Natural Computation, Fuzzy Systems and Knowledge Discovery (ICNC-FSKD 2016)*, Changsha, China, Aug. 13-15, 2016. DOI: 10.1109/FSKD.2016.7603503.
75. **J. Ding***, D. Zhang, "A Machine Learning Approach for Developing Test Oracles for Testing Scientific Software", *2016 International Conference on Software Engineering and Knowledge Engineering (SEKE 2016)*, San Francisco, CA. July 1- 3, 2016. 10.18293/SEKE2016-137.
76. **J. Ding***, D. Zhang, X. Hu, "A Framework for Ensuring the Quality of a Big Data Service", *13th IEEE Intl. Conference on Services Computing (SCC 2016)*, San Francisco, CA. June 27-July 1, 2016. (Best Paper Award Runner-up),DOI: 10.1109/SCC.2016.18.
77. J. Dixon, **J. Ding***, "An Empirical Study of Parallel Solution for GLCM Calculation of Diffraction Images", *38th Annual International Conference of IEEE Engineering in Medicine and Biology Society*, Orlando, August 17, 2016. DOI: 10.1109/EMBC.2016.7591596.
78. **J. Ding***, D. Zhang, "An Approach for Iteratively Generating Adequate Tests in Metamorphic Testing: A Case Study", *40th IEEE Intl. Conference on Software, Computers and Application (COMPSAC)*, Atlanta, GA, June 10-14, 2016.
79. **J. Ding***, D. Zhang, X. Hu, "An Application of Metamorphic Testing for Testing Scientific Software", *1st Workshop on Metamorphic Testing with ICSE 2016*, Austin, May 16, 2016.
80. Y. Du, H. Hu, W. Song, **J. Ding**, J. Lu, "Efficient Computing Composite Service Skyline with QoS Correlations", *12th IEEE International Conference on Services Computing (SCC 2015)*, New York, NY, June 27- July 2, 2015. DOI: 10.1109/SCC.2015.16
81. **J. Ding***, D. Zhang, "Modeling and Analyzing Publish-Subscribe Architecture using Petri Nets", *Intl. Conference on Software Engineering and Knowledge Engineering*, Pittsburgh, PA, July 6-8, 2015. DOI: 10.18293/SKE2015-232
82. S. K. Thati, **J. Ding***, D. Zhang, and X. Hu, "Feature Selection and Analysis of Diffraction Images", *4th IEEE Intl. Workshop on Information Assurance*, Vancouver, Canada, August 3-5, 2015.
83. **J. Ding***, Y. Shao, D. Zhang, "Development of A Sliding Window Protocol for Data Synchronization in a Flow Cytometer", *Intl. Conference on Software Engineering and Knowledge Engineering*, Vancouver, Canada, July 2014.
84. **J. Ding***, W. Song, D. Zhang, "An Approach for Modeling and Analyzing Mobile Push Notification Services", *11th IEEE International Conference on Services Computing (SCC 2014)*, Anchorage, Alaska, June 2014.

85. R. Grimes, **J. Ding***, "Development of a Novel Cryptography Tool for Personal Communication", *IEEE ICNSC 2014*, Miami, FL, April 2014.
86. **J. Ding***, D. Zhang, "An Approach for Modeling and Analyzing the Communication Protocols in a Telemedicine System", *6th International Conference on BioMedical Engineering and Informatics (BMEI 2013)*, Hangzhou, China, Dec. 2013.
87. **J. Ding***, D. Xu, J. Ge, "An Approach for Analyzing Software Specifications in Petri Nets." *SEKE 2013*, Boston, June 2013.
88. W. Zhang, W. Song, G. Zhang, **J, Ding**, X. Zhang, "Quantifying Consistency between Conceptual and Executable Business Processes." *IEEE SCC*, Santa Clara, CA, June 2013. DOI: 10.1109/SCC.2013.47
89. **J. Ding***, "Building a Guided Environment for Teaching Software Engineering", *IEEE CSEE&T. co-located with ICSE 2013*, San Francisco, May 2013.
90. **J. Ding***, "A Framework for Global Collaboration in Teaching Software Engineering", *CDGDSD3, co-located with ICSE 2013*, San Francisco, May 2013.
91. **J. Ding***, J. Ge, "An Approach for Modeling Code Mobility", *IEEE APSCC*, Dec. 6- 8, Guilin, China, 2012.
92. **J. Ding***, D. Xu, "Model-Based Metamorphic Testing: A Case Study", *SEKE 2012*, San Francisco, July 2012.
93. **J. Ding***, B. Yang, "Teaching Software Engineering with Global Understanding", *Workshop on Collaborative Teaching of Globally Distributed Software Development 2012, co-located with ICSE 2012*, Zurich, Switzerland, June 2012.
94. **J. Ding***, L. Mo, "Enforcement of Role-Based Access Control for Social Network Environments". *2012 Intl. Workshop on Information Assurance*, Washington, D.C., June 2012.
95. **J. Ding***, I. Cruz, C. Li, "A Formal Model for Building a Social Network", *7th IEEE Intl. Conference on Services Operations, Logistics and Informatics*, Beijing, China, July 2011.
96. **J. Ding***, T. Wu, D. Xu, J. Lu, X. Hu, "Metamorphic Testing of a Monte Carlo Modeling Program", *6th Intl. Workshop on Automation of Software Test (AST 11) at ICSE 2011*, Honolulu, May 2011.
97. M.H. N. Tabrizi, S. Vilkomir, **J. Ding***, "Development of North Carolina's first Software Engineering program: An experience report". *CSEE&T 2011*, Honolulu, May 2011.
98. **J. Ding***, T. Wu, J. Q. Lu, X. Hu, "Self-Checked Metamorphic Testing of an Image Processing Program", *4th IEEE Intl. Conference on Security Software Integration and Reliability Improvement*, Singapore, June 9-11, 2010.
99. **J. Ding***, C. R. Westbrook, M.N.H. Tabrizi, "Design Aspects with Use Cases: A Case Study", *22nd Intl. Conf. on Software Engineering and Knowledge Engineering (SEKE 2010)*, San Francisco, July 1-3, 2010.
100. D. Xu, **J. Ding**, "Prioritizing State-Based Aspect Tests", *3rd Intl. Conf. on Software Testing, Verification, and Validation*, Paris, France, April 6-10, 2010.
101. K.M. Jacobs, **J. Ding**, L.V. Yang, C.L. Reynolds, A.E. Ekpenyong, Y. Feng, M.A. Farwell, J.Q. Lu, X.H. Hu, "Diffraction Imaging Flow Cytometric and 3D Morphological Analysis of Three Cell Lines", *OSA Biomedical Optics Topical Meeting*, paper BTuD44, Miami, Florida, April 11-14, 2010.
102. Y. Fu, Z. Dong, **J. Ding**, X. He, V. Atluri, S. Li, "Modular Analysis of Software Architecture Model". *Software Engineering Research and Practice 2009*, pp. 17-23, 2009.
103. Y. Fu, **J. Ding**, P. Bording, "An Approach for Modeling and Analyzing Crosscutting Concerns", *5th IEEE Intl. Conf. on Services Operations, Logistics and Informatics, Chicago*, July 22-24, 2009.
104. A. E. Ekpenyong, **J. Ding**, L. Yang, N. R. Leffler, J. Lu, R. S. Brock, X.H. Hu, "Study of 3D Cell Morphology and Effect on Light Scattering Distribution", *European Conferences on Biomedical Optics (ECBO)*, Munich, Germany, June 14-18, 2009.
105. Y. Fu, Z. Dong, **J. Ding**, X. He, "Mapping Software Architecture Specification to Rewriting Logic", *8th Intl. Conference on Quality Software (QSIC 2008)*, Oxford, UK, August 2008.
106. **J. Ding***, G. Argote-Garcia, P. J. Clarke, X. He, "Evaluating Test Adequacy Coverage of High Level Petri Nets Using Spin", *3rd International Workshop on Automation of Software Test (AST08) at 30th Intl. Conf. on Software Engineering (ICSE08)*, Leipzig, Germany, May 2008.
107. **J. Ding***, M.N.H. Tabrizi, "Modeling and Model Checking of a Clinical Diagnostic Algorithm", *IEEE Intl. Conf. on Networking, Sensing and Control*, Sanya, Hainan, China, April 2008.

108. **J. Ding***, L. Mo, X. He, "An Approach for Specification Construction Using Property-Preserving Refinement Patterns", *23rd Annual ACM Symposium on Applied Computing*, Fortaleza, Cear?, Brazil, March 2008.
109. L. Chang, **J. Ding**, X. He, S. Shatz, "A Formal Modeling Approach for Software Agents Coordination", *4th Intl. Workshop on Agent-Oriented Development Methodology (AOSDM)*, Glasgow, UK, July 2008. (also on Comm. of SIWN, vol. 3, pp. 58-64, 2008).
110. **J. Ding***, D. Xu, Y. Deng, P.J. Clarke, and X. He, "Design an Interoperable Mobile Agent System Based on Predicate Transition Net Models", *17th International Conference on Software Engineering and Knowledge Engineering*, Taipei, 2005.
111. **J. Ding***, Z. Dai, J. Wang, and X. He, "Formally Modeling and Analyzing a Secure Mobile Agent Finder", *IEEE Intl. Conference on Systems, Man, and Cybernetics*, Hawaii, USA, 2005.
112. P.J. Clarke, **J. Ding**, and B.A. Malloy, "A Tool to Map Testing Techniques to Classes", *International Conference on Information Technology (ITCC 2005)*, Las Vegas, NV, 2005.
113. Z. Dai, X. He, **J. Ding**, and S. Gao, "Modeling and Analyzing Security Protocols in SAM: A Case Study", *IASTED Intl. Conf. on Software Engineering and Applications*, Cambridge, MA, 2004.
114. X. He, **J. Ding**, and Y. Deng, "Analyzing SAM Architectural Specifications Using Model Checking", *14th Intl. Conf. on Software Engineering and Knowledge Engineering*, Italy, 2002.
115. **J. Ding***, H. Dong, and J. L*ü*, "Researches on Models & Languages of Application Framework-Based Software Interoperability", *Proc. of ICYCS'98*, Oct. 1998.
116. H. Dong, **J. Ding**, and J. L*ü*, "Researches on Open Communication Frameworks for Software Agents", *Proc. of ICYCS'98*, Oct. 1998.

* corresponding author

Book Chapters

1. *"Smart Computer Vision"*, by B. Vinoth Kumar (Editor), P. Sivakumar (Editor), B. Surendiran (Editor), **J. Ding** (Editor), Springer International Publishing, Feb. 2023. ISBN-13: 9783031205408.
2. B. Awojobi and **J. Ding**, "Data Security and Privacy", H.-C. Chang, S. Hawamdeh (Eds.), *Cybersecurity for Information Professionals: Concepts and Applications*, Auerbach Publications, ISBN 9780367486815. 2020.
3. D. Rao, **J. Ding**, and V. Gudivada, "Supporting Data Analytics in Education: Human and Technical Resources Needed for Collecting, Storing, Analyzing, and Mining Data", B. H. Khan, J. R. Corbeil, and M. E. Corbeil (Eds.), *Responsible Analytics and Data Mining in Education*, pp.16-42, Routledge, New York, NY, 2019.
4. V. Gudivada, D. Rao, **J. Ding**, "Evolution and Facets of Data Analytics for Educational Data Mining and Learning Analytics",B. H. Khan, J. R. Corbeil, and M. E. Corbeil (Eds.), *Responsible Analytics and Data Mining in Education*, pp.141-155, Routledge, New York, NY, 2019.

Textbooks

1. Jiang Yang, Junhua Ding, *Data Visualization*, open textbook project, 2023, UNT.
2. Junhua Ding, *Software Engineering for Data Analytics and AI : From Requirements to Deployment of Data-Centric Intelligent Systems* , open textbook project, 2025, UNT

Keynote Talks

1. *Unifying Model, Data, and Innovation Evaluation for Trustworthy AI Testing*, The IEEE International Congress on Intelligent and Service-Oriented Systems Engineering (CISOSE), July 2025.

COURSES TAUGHT at UNT

1. DTSC4050: Statistical Methods for Data Science and Analysis
2. INFO4709: Data Visualization

3. DTSC5501: Fundamentals of Data Science
4. DTSC5502: Analytic Tools, Techniques and Methods
5. DTSC5504: Data Science II: Experimental Design
6. DTSC5505: Applied Machine Learning for Data Science
7. INFO5709: Data Visualization and Communication
8. DTSC5082: Seminars on Research Methods
9. INFO5737: Information and Cyber-security
10. INFO6945: Doctoral Seminar in Information Issues

COURSES TAUGHT at ECU

Undergraduate Courses

1. Algorithmic Problem Solving and Programming
2. Advanced Data Structures
3. Operating Systems I
4. Ethical and Professional Issues in Computer Science
5. High Performance Computing
6. Software Engineering
7. Software Engineering II
8. Introduction to Developing e-Business Systems

Graduate Courses

9. Distributed Computing/Operating Systems II
10. Computer Systems Architecture
11. Foundations of Software Engineering
12. Software Architecture and Design
13. Software Construction
14. Software Security Engineering
15. Software System Modeling and Analysis
16. Software Verification and Validation
17. Process Management and Life Cycle Modeling
18. Special Topics on Machine Learning
19. Special Topics on Applications of Deep Learning

GRANTS AND AWARDS

Major Grants

- NSF, IUCRC Phase I University of North Texas: Center for Electric, Connected and Autonomous Technologies for Mobility (eCAT), (the total is $2.25 millions, $600K to UNT), co-PI of UNT center (PI: S. Fu), 2023-2029.
- NSF, REU Site: Beyond Language: Training to Create and Share Vector Embeddings across Applications, $423,000, co-PI (PI: T. Xiao), 2023-2026.
- NSF, HSI Implementation and Evaluation Project: Develop a High-Quality Academic Environment for Broadening Participation of Hispanic Students in Computing, $500,000, PI, 2022-2025.
- DoD NSA, NCAE-C Cybersecurity Curriculum and Research 2020 Program, $300,000 (sole PI at UNT, share $100,000), 2020-2022.
- NSF, REU Site: Data Analytics and Information Retrieval (with RET supplement), $400,000, PI, 2019-2024.
- NSF, IUSE/PFE:RED: PPSE - Transforming Programmers to Professional Software Engineers through Curricular Innovation, Inclusive Pedagogy, and Faculty Development. $2.0 millions, co-PI, 2017-2022. (PI: V. Gudivada. left the project on 9/2018).
- NSF, REU Site: Software Testing and Analytics. $360,000, PI, 2016-2019.

- NSF, REU Site: Software Testing: Foundations, Tools and Applications. $360,000, PI, 2013-2017.

Others

- Star Performer Award, UNT, 2025
- Industry research grant for Electric, Connected and Autonomous Technologies for Mobility (eCAT) from SEES Group, $118,000, 2025.
- Industry research grant for Electric, Connected and Autonomous Technologies for Mobility (eCAT) from multiple companies, $100K, 2024.
- Leadership Award, College of Information, UNT, 2024, 2025.
- Faculty Excellence Award, College of Information, UNT, 2023.
- Research on Data Science, around $60,000, SourceInfo Tech., 2019-2022.
- UNT, 2019, 2022, 2023, 2025 Summer Open Education Resource Grant, $500, $4000, $8000, $7500.
- UNT College of Information, Summer Research Fund, $4,500, 2020, $5,000, 2024.
- UNT, Global Venture Fund, $2,000, 2019.
- UNT College of Information, HEF fund for the data science program, $325,000, 2024.
- UNT College of Information, HEF fund for the data science program, $50,000, 2019.
- UNT College of Information, New Faculty Start Fund, $5,000, 2019.
- UNT Dept. of Information Science, Summer Research Fund, $5,000, 2019.
- ECU, 2017 University Scholar, 2017.
- ECU Interdisciplinary Research Grant, $13,338, co-PI, (PI: Craig M. Becker), 2017.
- ECU, BB&T Faculty Leadership Fellows Program, $1800, 2017
- Google Cloud Platform Faculty Training Workshop travel grants, around $900, 2017.
- ECU Interdisciplinary Research Grant, $11,000, co-PI, (PI: Xin-Hua Hu), 2016.
- Nvidia Hardware Grant, GPU Cards, 2016, 2019.
- ECU, BB&T Active Learning and Leadership Development Incentive Grant, $1000, 2016.
- Travel support to the iPDC workshop, Tennessee Tech University, $2000, 2016.
- Travel support to the workshop of Web-based repository for software testing, Florida International University, $3500, 2015.
- CET college summer research fund: $1500, 2015.
- ECU Scholar Teacher Award, 2014.
- Outstanding Reviewer, Information and Software Technology (IST), 2015, 2018, 2022.
- ECU teaching development grant. $10,000, PI, 2013.
- 2012, 2019 Open research grant, State Key Laboratory for Novel Software Technology at Nanjing University. 40,000 RMB, 40,000 RMB, PI.
- NSF travel grant to ICSE. $1500, 2013.
- 2013, 2015 CET college summer research fund. $3000, $1500.
- BB&T leadership enhancement grants, $10,000, PI, 2012.
- NSF travel grant to FSE. $1500, 2012.
- 2010, 2012 CET college course development grant. $5000, $3000
- Travel support to the workshop of Web-based repository for software testing, Florida International University, $3500, 2009.

ADVISEES

- Major advisor of 36 completed graduate theses and projects at ECU
- Host 6 visiting scholars at ECU, 2 at UNT.
- PhD graduates
  As major professor or co-major professor

  1. Miyong Chong, co-chair with Dr. Tracy Everbach from Mayborn School of Journalism. July 2020. (First job after PhD or PostDoc: Assistant Professor with University of South Florida)
  2. Biodun Awojobi, co-chair with Dr. Suliman Huwamdeh from Department of Information Science. August 2020. (First job after PhD: Google)

3. Haihua Chen, co-chair with Dr. Jiangping Chen from Department of Information Science. January 2022. (First job after PhD: Assistant Professor with UNT)
4. Nguyen Huyen Thi Ngoc, March 2025. (First job after PhD: Data Scientist with Cigna Healthcare)

As advising committee member

1. Juncheng Ding, Computer Science. May 2022.
2. Xincheng Yu, Information Science, May 2023.
3. Junhe Yang, Learning Technology, September 2024.

PROFESSIONAL ACTIVITIES AND SERVICES

Academic Committee

- Strategic Planning Working Committee, UNT, 2024
- Chair of Data Science Faculty Search Committee, 2018-2024
- Member of Computing and Information Technology Committee, UNT, 2019-2024
- Member of Tenure and Promotion Committe, College of Information, UNT, 2019-2023
- Chair of Curriculum Committee, Dept. of Information Science, UNT 2020-2021
- Member of Assessment Committee, Dept. of Information Science, UNT 2018-2020
- Member of External Relations Committee, Dept. of Information Science, UNT 2018-2020
- Chair of Resources Committee, Dept. of Information Science, UNT 2019-2020
- Member of Graduate Curriculum Committee, Dept. of Computer Science, ECU 2017-2018
- Member of Graduate Study Committee, Dept. of Computer Science, ECU 2007-2018
- Member of Assessment committee, Dept. of Computer Science, ECU 2007-2009, 2016-2018
- Chair of curriculum committee, Dept. of Computer Science, ECU 2010-2012, 2014-2016
- Member of curriculum committee, College of Engineering and Technology, ECU 2014-2016
- Member of curriculum committee, Dept. of Computer Science, ECU 2007-2010
- Member of Information Technology Council, ECU 2009-2012
- Member of Leadership Training Initiative, ECU 2013-2015

Editorial Board

Information and Software Technology (IST), 2019-
Computer Standards & Interfaces, 2019-
Special Issue on Applications of Generative AI, Computer Standards & Interfaces, under processing
Special Issue on Applications of Deep Learning Techniques, Electronics, under processing
Special Issue on AI Test, Electronics, under processing

Referee

IEEE TSMC-A, IEEE TSMC-B, IEEE TSMC-C, The Computer Journal, Information Processing Letters, Journal of Systems and Software, Information and Software Technology, International Journal of Software Engineering and Knowledge Engineering, Journal of Internet Services and Applications, Software: Practice and Experience, Information Systems Frontiers, IEEE Transactions of Reliability, Future Generation Computer Systems, Software Quality Journal, Empirical Software Engineering, IEEE Transactions on Software Engineering, Intl. Journal of Information Management, ACM Journal of Data and Information Quality, IEEE Computer, The Electronic Library, Intl. Journal of GIS, The Journal of Supercomputing, Machine Learning, Scientific Reports, Information Processing and Management, iConference, Communications Medicine, etc.

Conference/Workshop Program Committee

ACM SAC (SE track): 2008-2016; IEEE SERE/QSIC/QRS: 2011-2025; ACM/IEEE AST with ICSE: 2009-2016; IEEE ISSRE/QRS (2011: registration chair, 2019: Publication chair); SEKE: 2009-2017; IEEE SCC:

2014-2017; IEEE HASE: 2013-2017, 2019; IEEE IWPD: 2014-2018; IEEE CSEE&T: 2016 Finance Chair; IEEE MET with ICSE: 2018; 2017 IEEE Big Data Quality Workshop with IEEE Big Data 2017; IEEE CCC: 2018-2019; IEEE BigData: 2018-25; ICDM 2025

Co-Chair: ACM/IEEE AST with ICSE 2017, IEEE SETA 2019, 2020, 2021, 2022, 2023, 2024; IEEE AITest, 2022, 2023, 2024; IEEE DSA 2025

Others

- Panelist, proposal review panels, National Science Foundation (NSF), every year from 2016 - 2025.