

YUHAO ZHONG

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Texas A&M University
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EDUCATION

- 09/2018 - 05/2025 **Texas A&M University,**
 Department of Industrial and Systems Engineering
 ◦ Ph.D. in Industrial Engineering (Data Science track)
 Thesis: Explainable Machine Learning for Smart Manufacturing and Healthcare
 Committee: Satish Bukkapatnam (chair),
 Anirban Bhattacharya, Samba Reddy, and Rui Tuo
 ◦ M.S. in Industrial Engineering
 Committee: Satish Bukkapatnam (chair), Yu Ding, and Srikanth Saripalli
- 09/2014 - 07/2018 **China University of Petroleum (Beijing),**
 College of Mechanical and Transportation Engineering
 ◦ B.E. in Safety Engineering

PUBLICATIONS

1. Ganatma Nakkina, Adithyaa Karthikeyan, **Yuhao Zhong**, Ceyhun Eksin, and Satish Bukkapatnam. "Learning graph-Fourier spectra of textured surface images for defect localization." *Manufacturing Letters* (2024), to appear.
2. **Yuhao Zhong**, Adithyaa karthikeyan, Prabhakar Pagilla, Ranjana K. Mehta, and Satish Bukkapatnam. "Human-centric integrated safety and quality assurance in collaborative robotic manufacturing systems." *CIRP Annals* 73, no. 1, (2024): 345-348.
3. **Yuhao Zhong**, Yalun Wen, Sarah Hopko, Adithyaa karthikeyan, Prabhakar Pagilla, Ranjana K. Mehta, and Satish Bukkapatnam. "Detecting anomalous robot motion in collaborative robotic manufacturing systems." *IEEE Internet of Things Journal* 11, no. 8 (2024): 13722-13733.
4. Qiyang Ma, **Yuhao Zhong**, Satish Bukkapatnam, and Zimo Wang. "The effect of microstructure on the machinability of natural fiber reinforced plastic composites: A novel explainable machine learning (XML) approach." *ASME Transactions Journal of Manufacturing Science and Engineering* 146, no. 3 (2024): 031003.
5. **Yuhao Zhong**, Ashish Jatav, Kahkashan Afrin, Tejaswini Shivaram, and Satish Bukkapatnam. "Enhanced SpO₂ estimation using explainable machine learning and neck photoplethysmography." *Artificial Intelligence in Medicine* 145 (2023): 102685.
6. **Yuhao Zhong**, Akash Tiwari, Hitomi Yamaguchi, Akhlesh Lakhtakia, and Satish Bukkapatnam. "Identifying the influence of surface texture waveforms on colors of polished surfaces using an explainable AI approach." *IISE Transactions* 55, no. 7 (2023): 731-745.
7. Adithyaa Karthikeyan, Akash Tiwari, **Yuhao Zhong**, and Satish Bukkapatnam. "Explainable AI-infused ultrasonic inspection for internal defect detection." *CIRP Annals* 71, no. 1 (2022): 449-452.
8. Kahkashan Afrin, Revanth Dusi, **Yuhao Zhong**, Samba Reddy, and Satish Bukkapatnam. "Prognosis of epileptic seizure event onsets using random survival forests." *IISE Transactions on Healthcare Systems Engineering* 12, no. 3 (2022): 221-231.
9. **Yuhao Zhong**, Zimo Wang, Aditya Yalamanchili, Aakash Yadav, Ravi Srivatsa, Srikanth Saripalli, and Satish Bukkapatnam. "Image-based flight control of unmanned aerial vehicles (UAVs) for material handling in custom manufacturing." *SME Journal of Manufacturing Systems* 56 (2020): 615-621.

Book chapters

10. **Yuhao Zhong**, Ganatma Nakkina, and Satish Bukkapatnam. "Machine learning and industrial applications." In *Maynard's Industrial and Systems Engineering Handbook (6th ed.)*, edited by Bopaya M. Bidanda, chapter 36. New York, NY: McGraw Hill, 2023.

Preprints

11. **Yuhao Zhong**, Anirban Bhattacharya, and Satish Bukkapatnam. "EBLIME: Enhanced Bayesian local interpretable model-agnostic explanations." *arXiv preprint arXiv:2305.00213* (2023). **1st Place Winner of 2023 Student Paper Contest in IISE Data Analytics & Information Systems Division**

Under review

12. Ganatma Nakkina, **Yuhao Zhong**, Pete Sumethasorn, and Satish Bukkapatnam. "Adaloss-CycleGAN: Weakly supervised industrial anomaly localization." (2024)

Patents

13. **Yuhao Zhong**, Adithyaa Karthikeyan, Akash Tiwari, Yuandong Wang, and Satish Bukkapatnam. "Convolutional neural network model to detect internal markers using ultrasound imaging." (Application filed in 2022, pending)

AWARDS & SCHOLARSHIPS

2024	U.S. Senator Phil Gramm Doctoral Fellowship (One of six awardees across Texas A&M. Only two other Industrial Engineers have been awarded in the past 20 years)
2024	M.J. Fox, Jr. & M.P. Fox Graduate Fellowship (Awarded to only one recipient by the Department of Industrial and Systems Engineering at Texas A&M)
2023 & 2024	Student Ambassador of Texas A&M Institute of Data Science (One of 13 or 16 awardees across the university)
2023	1st Place Winner of the IISE Data Analytics & Information Systems Student Paper Contest
2017	Top 16 (out of 114 teams) in CUP (Beijing) Robotics Contest as the Team Leader
2016 & 2017	Outstanding Individual in Technological Innovation at CUP (Beijing)
2016	Honorable Mention in COMAP Mathematical Contest in Modelling

TEACHING

01/2024 - present	Instructor of ISEN 414 at TAMU: Total Quality Engineering (39 undergraduate students)
08/2022 - 12/2022	TA of ISEN 613 at TAMU: Engineering Data Analysis (93 students)
08/2020 - 12/2020	TA of ISEN 230 at TAMU: Informatics for Industrial Engineers (74 students)
08/2019 - 12/2019	Grader of ISEN 660 at TAMU: Quantitative Risk Analysis

MENTORING

02/2021 - present	Research Mentor, TAMU X-Grants Program – Mentored 4 students (1 master's thesis) on data-driven seizure prognosis
06/2021 - 08/2021	Research Mentor, NSF-Research Experiences for Undergraduates – Mentored 1 student on developing a wearable device for blood oxygen monitoring

SERVICE

• Leadership:

01/2023 - present	Vice President of Academic Activities , INFORMS Student Chapter at TAMU – Consecutively awarded the highest distinction of Summa Cum Laude at the INFORMS Annual Meetings in 2023 and 2024, among 56 student chapters
09/2014 - 06/2016	Head of Culture and Sports Department , Student Union at CUP (Beijing)

• Volunteering:

10/2023	Programming Mentor , TAMU Datathon
01/2020 - 03/2020	Computer Vision Technician , TAMU Robomasters

• Session Chair:

- 2022/2023/2024 INFORMS Annual Meeting, *Explainable Machine Learning for Knowledge Discovery*

• Reviewing:

- **Journal:** Computers in Industry; ASME Journal of Manufacturing Science and Engineering; Artificial Intelligence in Medicine; International Journal of Machine Learning and Cybernetics; Procedia CIRP
- **Conference:** 2025 IEEE/CVF Winter Conference on Applications of Computer Vision (WACV); 2024 NeurIPS (Ethics Review)

TALKS & POSTERS

- EBLIME: Enhanced Bayesian local interpretable model-agnostic explanations
 - 2023/2024 IISE Annual Conference, Oral Presentation
 - 2022/2023 INFORMS Annual Meeting, Oral Presentation
- Machine learning methods for precision manufacturing applications
 - 2023 American Society for Precision Engineering (ASPE) Annual Meeting, Tutorial Co-teaching
- Detecting anomalous robot motion in collaborative robotic manufacturing systems
 - 2023 IISE Annual Conference, Oral Presentation
 - 2022 Lockheed Martin Executive Visit at Texas A&M University, Poster
 - 2022 Texas A&M Engineering Experiment Station's Advisory Board Meeting, Poster
- Explainable machine learning-based SpO_2 estimation using neck photoplethysmograms
 - 2021 INFORMS Annual Meeting, Oral Presentation
 - 2021 Workshop on 3D Printing and Design for Innovative Medical Devices at MNIT (India)

INDUSTRY EXPERIENCE

07/2017 - 08/2017 **Safety Supervisor Intern**, PetroChina Dushanzi Petrochemical Company

- Inspected and maintained emergency response technologies and a SCADA (Supervisory Control and Data Acquisition) system for oil and gas pipelines.
- Evaluated the safety of high-risk workspaces and equipment using Fault Tree Analysis and the LEC (Likelihood, Exposure, and Consequences) method.

SKILLS

Instruments: Scanning Electron Microscope (SEM), Atomic Force Microscope (AFM), Zygo 3D optical profiler, Hysitron nanoindenter, Optical microscope, Surface roughness tester, Semi-automatic grinder-polisher, Leco microhardness tester

Software: Python, MATLAB, Arduino, R studio, SolidWorks, SQL, NoSQL, Git, Tableau, JMP, \LaTeX , Excel VBA

PROFESSIONAL MEMBERSHIPS

Institute of Industrial and Systems Engineers (IISE)

Institute for Operations Research and the Management Sciences (INFORMS)

Society of Manufacturing Engineers (SME)

Institute of Electrical and Electronics Engineers (IEEE)