

# YuMing Zhang

Director of International Partnerships – College of Engineering  
James Boyd Professor in Electrical Engineering

<https://scholar.google.com/citations?user=kLq671IAAAAJ&hl=en>

## **Professional Preparation:**

- B.S., 1982.1, Control Major, Harbin Institute of Technology (HIT), Harbin, China
- M.S., 1984, Control Major, HIT, Harbin, China
- Ph.D., 1990, Welding Major, HIT, Harbin, China

## **Appointments:**

College of Engineering, University of Kentucky (UK)

- 12/16-present, Director of International Partnerships  
Department of Electrical and Computer Engineering & Institute for Sustainable Manufacturing, UK
  - 7/05-present, Professor of Electrical Engineering
  - 7/03-present, James R. Boyd Professor in Electrical Engineering
  - 8/98-present, Director of Welding Research Laboratory and Director of Applied Sensing and Control Laboratory
  - 8/98-6/05, Associate Professor of Electrical Engineering
  - 2/91-7/98, Research Scientist, Welding Research Laboratory and Applied Machine Vision Laboratory
- HIT State Key Laboratory of Advanced Welding and Joining – Junior Lecturer (9/84-8/86), Lecturer (9/86-11/90), and Associate Professor (12/90-2/9)

## **Ten Products:**

- Edison Muclari, Rui Yu, Yue Cao, Qiang Ye, YuMing Zhang. “Do We Need a New Foundation to Use Deep Learning to Monitor Weld Penetration?,” in review for IEEE Robotics and Automation Letters.
- Rui Yu, Yue Cao, Heping Chen, Qiang Ye, YuMing Zhang, 2023. “Deep Learning Based Real-Time and In-Situ Monitoring of Weld Penetration: Where we are and what are needed revolutionary solutions?” accepted for publication, Journal of Manufacturing Processes.
- Rui Yu, Joseph Kershaw, Peng Wang, YuMing Zhang, 2022. “How to accurately monitor the weld penetration from dynamic weld pool serial images using CNN-LSTM deep learning model?,” IEEE Robotics and Automation Letters, VOL. 7, NO. 3, JULY 2022, 6519-6525.
- Qiyue Wang, Wenhua Jiao, Peng Wang, YuMing Zhang, 2021. Digital Twin for Human-robot Interactive Welding and Welder Behavior Analysis. IEEE/CAA Journal of Automatica Sinica, 8(2): 334-343.
- Wenhua Jiao, Qiyue Wang, Yongchao Cheng, YuMing Zhang, 2021. End-to-end prediction of weld penetration: A deep learning and transfer learning based method. Journal of Manufacturing Processes, Volume 63, March 2021, pages 191-197.
- Rui Yu, Joseph Kershaw, Peng Wang, YuMing Zhang. Real-Time Recognition of Arc Weld Pool Using Image Segmentation Network. Journal of Manufacturing Processes, 72(2021): 159-167.

- YuMing Zhang, Yu-Ping Yang, Wei Zhang, Suck-Joo Na, 2020. Advanced Welding Manufacturing - A Brief Analysis and Review of Challenges and Solutions. J. Manuf. Sci. Eng., Special Issue: MED's 100th Anniversary, 142(11), Article number 110816.
- Qiyue Wang, Wenhua Jiao, YuMing Zhang, 2020. Deep learning-empowered digital twin for visualized weld joint growth monitoring and penetration control. Journal of Manufacturing Systems, 57: 429–439, October 2020, Pages 429-439.
- Chunyang Xia, Zengxi Pan, Joseph Polden, Huijun Li, Yanling Xu, Shanben Chen, and Yuming Zhang, 2020. A review on wire arc additive manufacturing: Monitoring, control and a framework of automated system. Journal of Manufacturing Systems, October 2020, 57: 31-45.
- Qiyue Wang, Wenhua Jiao, Rui Yu, Michael T. Johnson, YuMing Zhang, 2020. Virtual Reality Robot-Assisted Welding Based on Human Intention Recognition. IEEE Transactions on Automation Science and Engineering, 17(2): 799-808.

### **Current Professional Services:**

- American Welding Society (AWS): Member - Fellow Selection Committee
- International Institute of Welding (IIW): Chair, Symposium on Intelligent Welding Manufacturing, 2023 IIW International Conference, Singapore, July 16-21, 2023
- Society of Manufacturing Engineers (SME): Area Editor - Journal of Manufacturing Processes
- Institute of Electrical and Electronics Engineers (IEEE): General co-Chair - 2028 IEEE Conference on Automation Science and Engineering (CASE), Chicago, IL

### **Honors and Recognitions:**

- Fellow: (1) IEEE, 2023; (2) Asia-Pacific Artificial Intelligence Association (AAIA), 2023; (3) SME, 2015; (4) ASME, 2012; (5) AWS, 2009
- Six PhD Advisees won IIW Henry Granjon Prize: Wenhua Jia, 2023; Jianchong Chen, 2018; Yukang Liu, 2015; Weijie Zhang, 2013; Yi Huang, 2012; Kehai Li, 2008
- 2022 Outstanding Editorial Board Member, Journal of Manufacturing and Materials Processing, MDPI (Multidisciplinary Digital Publishing Institute), 2023
- International Meritorious Award, AWS, 2020
- Outstanding Associate Editor, Journal of Manufacturing Processes, SME, 2018
- A. F. Davis Silver Medal Award for Machine Design, AWS: 2018, 2017, 2015, 2014, 2011, 2009, 2001
- William Irrgang Memorial Award, AWS, 2017
- Dean's Award for Excellence in Research, College of Engineering, UK, 2016
- Charles H. Jennings Memorial Award, AWS: 2013, 2012
- W.H. Hobart Memorial Award, AWS, 2013
- Certificate of Appreciation for Ten Top Ranked Papers (out of 330 papers), The 21st IEEE International Symposium on Industrial Electronics (ISIE2012), 2012
- Adams Memorial Membership Award, AWS, 2005
- Poster Paper Prize, 15<sup>th</sup> Triennial World Congress, The International Federation of Automatic Control (IFAC), 2002
- Application Paper Prize Finalist, 15<sup>th</sup> Triennial World Congress, The International Federation of Automatic Control (IFAC), 2002
- Donald Julius Groen Prize, The Institution of Mechanical Engineers, United Kingdom, 1995
- Five awards from Chinese Governments for achievements in developing first generation welding robots and weld joint penetration sensing and control technology (1986-1991)