Dr. Yuqian Lu

Last updated: May, 2023

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Professional Appointments

2022 – on **Senior Lecturer**
Department of Mechanical and Mechatronics Engineering
Faculty of Engineering
The University of Auckland, New Zealand

2019 – 2021 **Lecturer**
Department of Mechanical and Mechatronics Engineering
Faculty of Engineering
The University of Auckland, New Zealand

2017 – 2019 **Product Manager/R&D Lead**
FRAMECAD Ltd., New Zealand

2016 – 2017 **Business Analyst/Software Developer**
FRAMECAD Ltd., New Zealand

2015 – 2016 **Business Analyst**
Compact Sorting Equipment, New Zealand

Education

2012 – 2016 **PhD in Mechatronics Engineering**, The University of Auckland, New Zealand

2007 – 2012 **Bachelor in Mechatronics Engineering**, Dalian University of Technology, China

Grants

My research has been funded by:

- New Zealand and China government agencies
- New Zealand industry partners through strategic research development and knowledge transfer
- The University of Auckland

In total, I have generated grants totalling **$1.1M** (NZD) as principal investigator (PI) and I have participated in grants totalling >**$1.7M** (NZD) out of **$18M** (NZD) research projects as an associate investigator (AI) - altogether managed >**$2.8M** (NZD) grants.

Awards & Honours

2021 **Best Paper Award**, Robotics and Computer-Integrated Manufacturing (IF=10.103)

2014 **Best Paper Shortlist**, IEEE International Conference on Industrial Engineering and Engineering Management

2010 **Tertiary Student of the Year (finalist, 100 students)**, Ministry of Education, China

2009 **Top10 Tertiary Student of the Year**, Department of Education, Liaoning Province, China

(2008,2011) **National Scholarship**, Ministry of Education, China

Academic Service

Editorship

2023 – on Editorial Board Member, *Journal of Manufacturing Systems*

2023 – on Editorial Board Member, *Scientific Reports*

2022 – on Editorial Board Member, *Journal of Engineering Design*

2022 – on Editorial Board Member, *Machines*

2023 – on Associate Editor, *IEEE CASE Conference Board*

2022 – on Associate Editor, *IET Cyber-Systems and Robotics*

2020 – on Associate Editor, *IET Collaborative Intelligent Manufacturing*

2022 Managing Guest Editor, *International Journal of Computer-Integrated Manufacturing*

2021 Managing Guest Editor, *Robotics and Computer-Integrated Manufacturing*

2021 Guest Editor, *Neural Computing and Applications*

Committees

2021 – on NAMRI/SME (The North American Manufacturing Research Institution of SME) Scientific Committee

2021 – on IEEE RAS Technical Committee on Digital Manufacturing and Human-Centred Automation

Professional Committee Membership

2018 – on Member, American Society of Mechanical Engineers

2019 – on Member, Society of Manufacturing Engineers

2020 – on Member, Institute of Electrical and Electronics Engineers

Chair/Committee, International Conferences

- **Organisation Chair**, 2023 IEEE 19th International Conference on Automation Science and Engineering (CASE)
- **Special Session Chair**, 2022 IEEE 18th International Conference on Automation Science and Engineering (CASE)
- **Organiser**, Symposium on Cloud Manufacturing at 2022 ASME MSEC Manufacturing Science and Engineering Conference
- **Session Chair**, 2020 IEEE 16th International Conference on Automation Science and Engineering (CASE)
- **Committee Member**, The 48th International Conference on Computers and Industrial Engineering
- **Special Session Organiser**, The 48th International Conference on Computers and Industrial Engineering
- **Organiser**, Symposium on Cognitive Manufacturing at 2020 ASME MSEC Manufacturing Science and Engineering Conference

Grant Assessor

- Fundamental Research Programme, University of Mons, Belgium
- National Research and Development Agency, Chile

Reviewer

- IEEE Transactions on Automation Science and Engineering
- Journal of Manufacturing Systems

- Journal of Intelligent Manufacturing
- International Journal of Production Research
- ASME Journal of Manufacturing Science and Engineering
- Robotics and Computer-Integrated Manufacturing
- Human-centric Computing and Information Sciences
- SME Manufacturing Letters
- Computers in Industry
- IEEE Transactions on Industrial Informatics
- Advanced Engineering Informatics
- Engineering
- IEEE Access

Teaching

Undergraduate

2019 – on	MECHENG352: Manufacturing Systems Course Coordinator, (50% of module)
2019 – on	MECHENG752: Technology Management (∼30% of module)
2020 – on	MECHENG709: Industrial Automation (50% of module)
2022 – on	MECHENG754: Industry 4.0 Smart Manufacturing (33% of module)

Postgraduate

2020 – on	MECHENG710: Advanced Industrial Automation (25% of module)
2020 – 2021	MECHENG751: Advanced CAD/CAM/CNC (50% of module)
2022 – on	MECHENG753: Advanced Industry 4.0 Smart Manufacturing (33% of module)

Student supervision (Main Supervisor)

Current Students (20)

PhD Students (**10**)

2022 – on	Regina Lee | Jiaxu Niu
2021 – on	Yonghui Tao | Dazzle Johnson | Akhil Ramesh | Wanqing Xia
2020 – on	Zengkun Liu | Hao Zheng | Saahil Chand
2019 – on	Zhaojun Qin

Master Students - Research Thesis (**1**)

2023 – on	Sheung Ip Jonas Wan

Undergraduate Honours Students (**8**)

2023 – on	Travis Augenstein | Andreas Hamschmidt | Caleb Parker-Lee | Jesse Weston | Indu Narahenpitage | Brian Yu | Jarrod Chan | Matthew Horning

Alumni (30)

Master Students - Research Thesis (**5**)

2023	Joshua Goh
2022	Karen Wang | Sidhant Raje
2021	Munirah Mahadi
2020	Ziwei Su

MEngSt Students - Research Project (**5**)

2022	Cooper Li
2020	Akhilnandh Ramesh | Dinghe Liu | Leon Rodrigues | Jiaxu Niu

Undergraduate Honours Students (**30**)

2022	Andrew Fairweather | Tom Grimwood | Jae Lee | Sheung Ip Jonas Wan | Eric Che | Benedict Loeng | Nageesh Sharma | Robert Tate
2021	Regina Lee | Zifan Li | Josh Fenn | Raani Kelderman | Molina Vincent | Keegan Fernandes | Sam McGillicudy | Walter Xu
2020	Morgan Davies | Reuben Hughes | Finn O'Brien | Blake Wagstaff | Hamish Marsden | Stephen Monaghan | Joshua Stanaway | Zhuoyun Zhang | Yonghui Tao | Nimesha Witharana | Anna Saunders
2019	Joshua Goh | Wanqing Xia | Nikhil Harilal | Steve Tran

Media & Outreach

2021 Interviewed by The University of Auckland, *"A robot to help workers on the factory floor"*: a-robot-to-help-workers-on-the-factory-floor

2021 Interviewed by Facteon, *"Customer Stories: University of Auckland: Flexible & Mobile Automation for Manufacturers"*: university-of-auckland-flexible-and-mobile-automation-for-manufacturers

Presentations

Invited & Keynotes

2021 Manufacturing Smarter after the Pandemic, *Tech Tuesday*.
Recording: youtube.com/watch?v=UWdSxRgcppI

Manufacturing Business Innovation Driven by Deep Tech Disruption, *Callaghan Innovation Morning Talks*.

Commuication, Coordination and Control in Smart Manufacturing Systems, *Overseas Scientist Forum, Huazhong University of Science and Technology*.

Manufacturing Paradigm Shifts and Impact on Future Talents, *Donghua University*.

2019 Manufacturing Intelligence in the Era of Industry 4.0, *Donghua University*.

Smart Manufacturing and Artificial Intelligence, *Jiangsu University*.

Publications

Full list of publications at: Google Scholar

Peer-reviewed Journal Articles

[74] Liu, S., **Lu, Y.**, Li, J., Shen, X., Sun, X., Bao, J., "A blockchain-based interactive approach between digital twin-based manufacturing systems," *Computers and Industrial Engineering*, vol. 175, 2023. DOI: 10.1016/j.cie.2022.108827.

[73] Liu, S., **Lu, Y.**, Shen, X., Bao, J., "A digital thread-driven distributed collaboration mechanism between digital twin manufacturing units," *Journal of Manufacturing Systems*, vol. 68, pp. 145–159, 2023. DOI: 10.1016/j.jmsy.2023.02.014.

[72] Qin, Z., Johnson, D., **Lu, Y.,** "Dynamic production scheduling towards self-organizing mass personalization: A multi-agent dueling deep reinforcement learning approach," *Journal of Manufacturing Systems*, vol. 68, pp. 242–257, 2023. DOI: 10.1016/j.jmsy.2023.03.003.

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[67] Liu, T., Wang, J., Huang, X., **Lu, Y.**, Bao, J., "3dsmda-net: An improved 3dcnn with separable structure and multi-dimensional attention for welding status recognition," *Journal of Manufacturing Systems*, vol. 62, pp. 811–822, 2022. DOI: 10.1016/j.jmsy.2021.01.017.

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[63] Ye, X., **Lu, Y.**, Manoharan, S., "Automated conversion of engineering rules: Towards flexible manufacturing collaboration," *Results in Engineering*, vol. 16, 2022. DOI: 10.1016/j.rineng.2022.100680.

[62] Zhang, R., Li, J., Zheng, P., **Lu, Y.**, Bao, J., Sun, X., "A fusion-based spiking neural network approach for predicting collaboration request in human-robot collaboration," *Robotics and Computer-Integrated Manufacturing*, vol. 78, 2022. DOI: 10.1016/j.rcim.2022.102383.

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[34] **Lu, Y.**, Peng, T., Xu, X., "Energy-efficient cyber-physical production network: Architecture and technologies," *Computers and Industrial Engineering*, vol. 129, pp. 56–66, 2019. DOI: 10.1016/j.cie.2019.01.025.

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Book Chapters

[22] Rong, Z., Jinsong, B., Yuqian, L., Jei, L., Qibin, L., "Human-robot collaborative assembly based on cps," in *Cyber-Physical Systems*, CRC Press, 2022, pp. 71–85.

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Peer-reviewed Conference Proceedings

[19] Chohan, B., Xu, X., **Lu, Y.,** "Mes dynamic interoperability for smes in the factory of the future perspective," vol. 107, 2022, pp. 1329–1335. DOI: 10.1016/j.procir.2022.05.153.

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[3] **Lu, Y.**, Xu, X., "Process and production planning in a cloud manufacturing environment," vol. 2, 2015. DOI: 10.1115/MSEC20159382.

[2] ——, "Cloud manufacturing for a service-oriented paradigm shift," vol. 2015-January, 2014, pp. 1146–1150. DOI: 10.1109/IEEM.2014.7058818.

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