Yuchen Jiang

Department of Control Science and Engineering
Harbin Institute of Technology, Harbin, 150001, P. R. China
Address: No. 92, Xidazhi Street, Harbin, China
Telephone: (86) 13945178395
Email: yc.jiang2016@foxmail.com
Homepage: http://orcid.org/0000-0003-3918-7039
Profiles: ORCID, ResearchGate, Scopus, IEEEXplore, LinkedIn

Education

Technical University of Munich (TUM), Germany 04/2019-05/2020

Research direction: Fault diagnosis and fault-tolerant control

Visiting Student Researcher, Joint-PhD training program, funded by China Scholarship Council

Harbin Institute of Technology (HIT), China 09/2016 - present

Major: Control science and engineering

Degree Expected: Ph.D.

University of New South Wales (UNSW), Australia 07/2014-12/2014

Major: Electrical Engineering

Exchange Program, funded by China Scholarship Council

Harbin Institute of Technology (HIT), China 08/2012-06/2016

Major: Automation (with the Honor School of HIT)

Overall GPA: 90.88/100.00 Ranking: 2/21

Degree Received: Bachelor of Engineering

Honors & Awards

- **China National Scholarship**, Ministry of Education of the P.R. China 10/2019
- **Peer Review Awards 2019** in Engineering, Computer Science (Top 1%), Publons 09/2019
- **Qiming Aerospace Scholarship**, China Aerospace Foundation 10/2018
- **Peer Review Awards 2018** in Engineering (Top 1%), Publons 09/2018
- **Chinese Government Scholarship**, National high-level university construction program funded by China Scholarship Council 06/2018
- **Outstanding Reviewer**, Neurocomputing 06/2018
- **Outstanding Communist Youth League member**, Harbin Institute of Technology 05/2018
- HIT **International Conference Scholarship,** for excellent doctoral students 03/2018
- **Triple A Outstanding Student**, Harbin Institute of Technology 12/2016
- **Outstanding Graduates**, Harbin Institute of Technology 05/2016
- **Chunhui Innovation Achievement Award**, Harbin Institute of Technology 05/2016
- **IEEE Student Paper Travel Award**, IEEE International Conference on Industrial Technology (ICIT) (Score ranking No. 1)
- **Meritorious Winner**, Mathematical Contest in Modeling (MCM) 02/2015
- HIT **First Prize Scholarship**, HIT Honor School (top 5%) 01/2015
- HIT **First Prize Scholarship**, HIT Honor School (top 5%) 07/2014
- **Chinese Government Scholarship**, for excellent undergraduates to study abroad 06/2014
- HIT **First Prize Scholarship**, HIT Honor School (top 5%) 01/2014
- **Menglun Yu CAS Academician Aerospace Second Prize Scholarship**, for Outstanding Academic Performances, HIT School of Astronautics 12/2013

- **Triple A Outstanding Student**, Harbin Institute of Technology 12/2013
- HIT **First Prize Scholarship**, HIT Honor School (top 5%) 07/2013
- HIT **First Prize Scholarship**, HIT Honor School (top 5%) 01/2013

Publications

Book chapter

[B1] **Y. Jiang**, S. Yin, "Data-driven approaches to fault-tolerant control of industrial robotic systems", Institution of Engineering and Technology (IET), Michael Faraday House, Six Hills Way, Stevenage, Hertfordshire, UK. (Accepted)

Journal publications (SCI indexed)

[J8] Hongyan Yang, **Yuchen Jiang**, Shen Yin, "Adaptive Fuzzy Fault Tolerant Control for Markov Jump Systems with Additive and Multiplicative Actuator Faults", IEEE Transactions on Fuzzy Systems, 2020. DOI: 10.1109/TFUZZ.2020.2965884 (Impact Factor: **8.759**)

[J7] S. Yin, J. Rodriguez, **Y. Jiang**, "Real-Time Monitoring and Control of Industrial Cyber-Physical Systems", IEEE Industrial Electronics Magazine. Vol. 13, No. 4, pp. 38-47, 2019. DOI: 10.1109/MIE.2019.2938025 (Impact Factor: **13.241**)

[J6] **Y. Jiang**, S. Yin, "Recent Advances in Key-Performance-Indicator Oriented Prognosis and Diagnosis with a MATLAB Toolbox: DB-KIT", IEEE Transactions on Industrial Informatics. Vol. 5, No. 15, pp. 2849-2858, 2019. DOI: 10.1109/TII.2018.2875067 (Impact Factor: **5.430**)

[J5] **Y. Jiang**, S. Yin, O. Kaynak, "Data-Driven Monitoring and Safety Control of Industrial Cyber-Physical Systems: Basics and Beyond", IEEE Access, Vol. 6, pp. 47374 – 47384, 2018. DOI: 10.1109/ACCESS.2018.2866403. (Impact Factor: **3.557**)

[J4] H. Yang, **Y. Jiang**, Shen Yin, "Fault-tolerant control of time-delay Markov jump systems with Ito stochastic process and output disturbance based on sliding mode observer", IEEE Transactions on Industrial Informatics. DOI: 10.1109/TII.2018.2812754. (Impact Factor: **6.764**)

[J3] **Y. Jiang**, S. Yin. "Recursive Total Principle Component Regression Based Fault Detection and Its Application to Vehicular Cyber-Physical Systems", IEEE Transactions on Industrial Informatics. Vol. 14, No. 4, pp.1415-1423, 2018. DOI: 10.1109/TII.2017.2752709. (Impact Factor: **6.764**)

[J2] S. Yin, **Y. Jiang**, Y. Tian, O. Kaynak. "A Data-Driven Fuzzy Information Granulation Approach for Freight Volume Forecasting", IEEE Transactions on Industrial Electronics, Vol. 64, No. 2, pp. 1447-1456, 2017. DOI: 10.1109/TIE.2016.2613974. (Impact Factor: **7.168**)

[J1] S. Yin, C. Yang, J. Zhang, and **Y. Jiang**. "A Data-Driven Learning Approach for Nonlinear Process Monitoring Based on Available Sensing Measurements", IEEE Transactions on Industrial Electronics, Vol. 64, No. 1, pp. 643-653, 2017. DOI: 10.1109/TIE.2016.2607683. (Impact Factor: **7.168**)

Conference publications (EI indexed)

[C10] H. Peng, **Y. Jiang**, X. Li, and S. Yin. "A Novel redundant information elimination aided classification approach for cervical cancer diagnosis", 11th CAA Symposium on Fault Detection, Supervision, and Safety for Technical Processes, 2019. (Accepted)

[C9] X. Li, **Y. Jiang**, H. Peng, S. Yin. "An aerial image segmentation approach based on enhanced multi-scale convolutional neural network", 2nd IEEE International Conference on Industrial Cyber-Physical Systems (ICPS), 2019. DOI: 10.1109/ICPHYS.2019.8780187

[C8] **Y. Jiang**, B. An, S. Yin. "Design approach for MIMO diagnostic observer and its application to fault detection", 44th Annual Conference of the IEEE Industrial Electronics Society (IECON), pp. 5377-5382, 2018. DOI: 10.1109/IECON.2018.8591113

[C7] **Y. Jiang**, K. Li, S. Yin. "Cyber-physical system based factory monitoring and fault diagnosis with plant-wide performance optimization", 1st IEEE International Conference on Industrial Cyber-Physical Systems (ICPS), 2018. DOI:10.1109/ICPHYS.2018.8387666

[C6] H. Yu, **Y. Jiang**. "A Data Driven Sensor Fault Tolerant Scheme for Nonlinear Systems", 43nd Annual Conference of the IEEE Industrial Electronics Society (IECON), 2017. DOI: 10.1109/IECON.2017.8217234.

[C5] **Y. Jiang**, S. Yin. "Recent results on key performance indicator oriented fault detection using the DB-KIT toolbox", 43nd Annual Conference of the IEEE Industrial Electronics Society (IECON), 2017. DOI: 10.1109/IECON.2017.8217242.

[C4] T. Gao, N. Zhao, H. Yu, J. Yin, **Y. Jiang**. "A PLS based locally weighted project regression approach for fault diagnose of nonlinear process", IEEE International Conference on Industrial Technology (ICIT), 2016. DOI: 10.1109/ICIT.2016.7474879.

[C3] **Y. Jiang**, S. Yin, Y. Yang. "Comparison of KPI related fault detection algorithms using a newly developed MATLAB toolbox: DB-KIT", 42nd Annual Conference of the IEEE Industrial Electronics Society (IECON), 2016. DOI: 10.1109/IECON.2016.7792957.

[C2] **Y. Jiang**, H. Yu, J. Yin, C. Yang. "Study on KPI-related subspace decomposition for fault detection and robust KPI prediction against abnormal data", IEEE 25th International Symposium on Industrial Electronics (ISIE), 2016. DOI: 10.1109/ISIE.2016.7744873.

[C1] **Y. Jiang**, N. Zhao, Z. Yin, H. Yu. "Study on recent developments of residual generation design approach based on available process measurements", IEEE International Conference on Industrial Technology (ICIT), 2016. DOI: 10.1109/ICIT.2016.7474884.

Projects

- **Research on integrated design of performance supervised fault diagnosis and fault-tolerant control approach** 01/2019-12/2022
  General project funded by the National Natural Science Foundation of China
  Principal participant (ranking No. 3) in charge of framework establishment and coordination
- **Theoretical research on plug-and-play process monitoring and control of complex Industrial Systems** 01/2018-12/2020
  National Excellent Young Scientists Fund
  Principal participant (ranking No. 8) in charge of theoretical and algorithmic research
- **Closed-loop diagnosis and fault-tolerance technology for complex control system of military safety-critical facilities** 01/2018-12/2020
  National Defense Technology Basic research project
  Principal participant in charge of theoretical and algorithmic research
- **Develop a Matlab toolbox for data-driven process monitoring, prognosis and fault diagnosis** 09/2015-present
  Freely available online at https://www.mathworks.cn/matlabcentral/fileexchange/65348-db-kit

Activities

- **Peer reviewer** of international journals and conferences, serving for
  IEEE Transactions on Industrial Electronics, IEEE Transactions on Industrial Informatics, Neurocomputing, IFAC SAFEPROCESS, Journal of Intelligent & Fuzzy Systems, Information Science, IEEE Transactions on Automation Science and Engineering, Transactions of the Institute of Measurement and Control, etc.
- **Member** of Chinese Association for Artificial Intelligence (CAAI) 08/2019 - present
- **Camper** of 4th International Summer School on Industrial Agents & Cyber-Physical Systems 05/2018
- Acting **Track chair** of 1st IEEE International Conference on ICPS 05/2018
- **Member** of IEEE Systems, Man, and Cybernetics Society 04/2017 - present
- **Member of** IEEE Young Professionals 01/2017 - present
- **Member** of IEEE Industrial Electronics Society 01/2016 - present
- **Student member** of IEEE 01/2016 - present

蒋宇辰

航天学院，控制科学与工程
哈尔滨工业大学，中国哈尔滨，150001
地址：西大直街 92 号，中国哈尔滨
电话: (86) 13945178395
电子邮件: yc.jiang2016@foxmail.com
个人主页: http://orcid.org/0000-0003-3918-7039
个人资料: ORCID, ResearchGate, Scopus, IEEEXplore, LinkedIn

教育背景

慕尼黑工业大学, 德国 04/2019-05/2020
研究方向：故障诊断与容错控制
访问学生，国家留学基金委博士生联合培养项目

哈尔滨工业大学, 中国 09/2016 至今
专业：控制科学与工程（航天学院）
攻读学位：博士

新南威尔士大学, 澳大利亚 07/2014-12/2014
专业：电气工程
交换学生，国家留学基金委优秀本科生交换项目

哈尔滨工业大学, 中国 08/2012-06/2016
专业：自动化（英才学院）
GPA：90.88/100.00 排名：2/21
授予学位：工学学士

荣誉与奖励

- **博士研究生国家奖学金**, 中华人民共和国教育部 10/2019
- **同行评议奖 2019** 工程学科, 计算机科学学科 (前 1%), Publons 09/2019
- **启明航天奖学金**, 中国航天基金会 10/2018
- **同行评议奖 2018** 工程学科 (前 1%), Publons 09/2018
- **国家留学基金委奖学金**, 国家建设高水平大学项目（联合培养博士） 06/2018
- **杰出审稿人**, Neurocomputing 06/2018
- **优秀团员**, 哈尔滨工业大学 05/2018
- **国际会议奖学金**, 哈工大优秀博士生国际交流支持 03/2018
- **三好学生**, 哈尔滨工业大学 12/2016
- **优秀毕业生**, 哈尔滨工业大学 05/2016
- **春晖创新成果奖**, 哈尔滨工业大学 05/2016
- **IEEE 学生论文旅行奖**, IEEE 工业电子学会 (得分排名第一) 03/2016
- **M 奖 (Meritorious Winner)**, 美国大学生数学建模竞赛 02/2015
- **一等人民奖学金**, 哈工大英才学院 (前 5%) 01/2015
- **一等人民奖学金**, 哈工大英才学院 (前 5%) 07/2014
- **国家留学基金委奖学金**, 优秀本科生交换项目 06/2014
- **一等人民奖学金**, 哈工大英才学院 (前 5%) 01/2014
- **余梦伦航天奖学金**, 哈工大航天学院 12/2013

- **三好学生**, 哈尔滨工业大学 12/2013
- **一等人民奖学金**, 哈工大英才学院 (前 5%) 07/2013
- **一等人民奖学金**, 哈工大英才学院 (前 5%) 01/2013

发表论文

专著章节

[B1] **Y. Jiang**, S. Yin, "Data-driven approaches to fault-tolerant control of industrial robotic systems", Institution of Engineering and Technology (IET), Michael Faraday House, Six Hills Way, Stevenage, Hertfordshire, UK. (Accepted)

期刊论文（SCI 检索）

[J8] Hongyan Yang, **Yuchen Jiang**, Shen Yin, "Adaptive fuzzy FTC for Markov jump systems with additive and multiplicative actuator faults", IEEE Transactions on Fuzzy Systems, 2020. (Accepted) (Impact Factor: **8.759**)

[J7] S. Yin, J. Rodriguez, **Y. Jiang**, "Real-Time Monitoring and Control of Industrial Cyber-Physical Systems", IEEE Industrial Electronics Magazine. Accepted, 2019. (Impact Factor: **13.241**)

[J6] **Y. Jiang**, S. Yin, "Recent Advances in Key-Performance-Indicator Oriented Prognosis and Diagnosis with a MATLAB Toolbox: DB-KIT", IEEE Transactions on Industrial Informatics. Vol. 5, No. 15, pp. 2849-2858, 2019. DOI: 10.1109/TII.2018.2875067 (Impact Factor: **5.430**)

[J5] **Y. Jiang**, S. Yin, O. Kaynak, "Data-Driven Monitoring and Safety Control of Industrial Cyber-Physical Systems: Basics and Beyond", IEEE Access, Vol. 6, pp. 47374 – 47384, 2018. DOI: 10.1109/ACCESS.2018.2866403. (Impact Factor: **3.557**)

[J4] H. Yang, **Y. Jiang**, Shen Yin, "Fault-tolerant control of time-delay Markov jump systems with Ito stochastic process and output disturbance based on sliding mode observer", IEEE Transactions on Industrial Informatics. DOI: 10.1109/TII.2018.2812754. (Impact Factor: **6.764**)

[J3] **Y. Jiang**, S. Yin. "Recursive Total Principle Component Regression Based Fault Detection and Its Application to Vehicular Cyber-Physical Systems", IEEE Transactions on Industrial Informatics. Vol. 14, No. 4, pp.1415-1423, 2018. DOI: 10.1109/TII.2017.2752709. (Impact Factor: **6.764**)

[J2] S. Yin, **Y. Jiang**, Y. Tian, O. Kaynak. "A Data-Driven Fuzzy Information Granulation Approach for Freight Volume Forecasting", IEEE Transactions on Industrial Electronics, Vol. 64, No. 2, pp. 1447-1456, 2017. DOI: 10.1109/TIE.2016.2613974. (Impact Factor: **7.168**)

[J1] S. Yin, C. Yang, J. Zhang, and **Y. Jiang**. "A Data-Driven Learning Approach for Nonlinear Process Monitoring Based on Available Sensing Measurements", IEEE Transactions on Industrial Electronics, Vol. 64, No. 1, pp. 643-653, 2017. DOI: 10.1109/TIE.2016.2607683. (Impact Factor: **7.168**)

会议论文（EI 检索）

[C10] H. Peng, **Y. Jiang**, X. Li, and S. Yin. "A Novel redundant information elimination aided classification approach for cervical cancer diagnosis", 11th CAA Symposium on Fault Detection, Supervision, and Safety for Technical Processes, 2019. (Accepted)

[C9] X. Li, **Y. Jiang**, H. Peng, S. Yin. "An aerial image segmentation approach based on enhanced multi-scale convolutional neural network", 2nd IEEE International Conference on Industrial Cyber-Physical Systems (ICPS), 2019. DOI: 10.1109/ICPHYS.2019.8780187

[C8] **Y. Jiang**, B. An, S. Yin. "Design approach for MIMO diagnostic observer and its application to fault detection", 44th Annual Conference of the IEEE Industrial Electronics Society (IECON), pp. 5377-5382, 2018. DOI: 10.1109/IECON.2018.8591113

[C7] **Y. Jiang**, K. Li, S. Yin. "Cyber-physical system based factory monitoring and fault diagnosis with plant-wide performance optimization", 1st IEEE International Conference on Industrial Cyber-Physical Systems (ICPS), 2018. DOI:10.1109/ICPHYS.2018.8387666

[C6] H. Yu, **Y. Jiang**. "A Data Driven Sensor Fault Tolerant Scheme for Nonlinear Systems", 43nd Annual Conference of the IEEE Industrial Electronics Society (IECON), 2017. DOI:

10.1109/IECON.2017.8217234.

[C5] **Y. Jiang**, S. Yin. “Recent results on key performance indicator oriented fault detection using the DB-KIT toolbox”, 43nd Annual Conference of the IEEE Industrial Electronics Society (IECON), 2017. DOI: 10.1109/IECON.2017.8217242.

[C4] T. Gao, N. Zhao, H. Yu, J. Yin, **Y. Jiang**. “A PLS based locally weighted project regression approach for fault diagnose of nonlinear process”, IEEE International Conference on Industrial Technology (ICIT), 2016. DOI: 10.1109/ICIT.2016.7474879.

[C3] **Y. Jiang**, S. Yin, Y. Yang. “Comparison of KPI related fault detection algorithms using a newly developed MATLAB toolbox: DB-KIT”, 42nd Annual Conference of the IEEE Industrial Electronics Society (IECON), 2016. DOI: 10.1109/IECON.2016.7792957.

[C2] **Y. Jiang**, H. Yu, J. Yin, C. Yang. “Study on KPI-related subspace decomposition for fault detection and robust KPI prediction against abnormal data”, IEEE 25th International Symposium on Industrial Electronics (ISIE), 2016. DOI: 10.1109/ISIE.2016.7744873.

[C1] **Y. Jiang**, N. Zhao, Z. Yin, H. Yu. “Study on recent developments of residual generation design approach based on available process measurements”, IEEE International Conference on Industrial Technology (ICIT), 2016. DOI: 10.1109/ICIT.2016.7474884.

科研项目

- **Research on integrated design of performance supervised fault diagnosis and fault-tolerant control approach** 01/2019-12/2022
  中国国家自然基金面上项目
  主要参与人（排序第 3）负责统筹协调与理论框架搭建

- **Theoretical research on plug-and-play process monitoring and control of complex Industrial Systems** 01/2018-12/2020
  中国国家自然基金青年科学基金项目
  主要参与人（排序第 8）负责理论与算法研究

- **Closed-loop diagnosis and fault-tolerance technology for complex control system of military safety-critical facilities** 01/2018-12/2020
  国家国防科技工业局国防基础科研项目
  主要参与人，负责理论与算法研究

- 开发 Matlab 工具箱（数据驱动的过程监控、故障预测与诊断） 09/2015-08/2018
  开源工具箱，地址 https://www.mathworks.cn/matlabcentral/fileexchange/65348-db-kit

学术组织与活动

- 期刊与会议审稿人
  IEEE Transactions on Industrial Electronics, IEEE Transactions on Industrial Informatics, Neurocomputing, IFAC SAFEPROCESS, Journal of Intelligent & Fuzzy Systems, Information Science, IEEE Transactions on Automation Science and Engineering, Transactions of the Institute of Measurement and Control, etc.
- 中国人工智能协会会员 08/2019 至今
- 第四届 Industrial Agents & Cyber-Physical Systems 国际暑期学校营员 05/2018
- 执行分会主席，第一届 IEEE 工业信息物理系统国际会议 05/2018
- IEEE Systems, Man, and Cybernetics 学会会员 04/2017 至今
- IEEE 工业电子学会会员 01/2016 至今
- IEEE 学生会员 01/2016 至今