


工程机械学院国际学生导师

教授 Professor			
Min Ye 叶敏	Zhang Xinrong 张新荣	WANG Guoqing 王国庆	
			
Cai Zongyan 蔡宗琰	Wang Binhua 王斌华	Yang Yanpu 杨延璞	
			
副教授 Associate Professor			
Geng Qi 耿麒	Zhang Jun 张军	Yuqin Ma 马玉钦	Wang Chen 王琛
			
Lv Jingxiang 吕景祥	Zhang Xiaoli 张小丽	Zhao Yong 赵勇	Liu Xiaohui 刘晓辉
			

Su Jinzhan 苏进展	Xia Xiaohua 夏晓华	Wang Haifei 王海 飞	Zhang Zeyu 张泽宇
			
Zhang Qingzhe 张青哲	MaDengcheng 马登成	Zhu Chengcheng 朱成成	Li Jia 李嘉
			
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Zhang Jun 张军		
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Research interests:

1. Non-destructive detection technology for pavement defects;
2. Electric drive control and autonomous driving technology for construction machinery;
3. Electro-hydraulic control technology for construction machinery;
4. Maintenance technologies and equipment for highways and railways;
5. Big data applications and deep learning.

Represent publications:

1. Jun Zhang, Yaming Lu, Zhe Yang, Xin Zhu, Ting Zheng, Xin Liu*, Yaogang Tian, Weiguang Li. Recognition of void defects in airport runways using ground-penetrating radar and shallow CNN[J]. Automation in Construction,2022,138(4). (SCI, Q1, IF=10.5)
2. Hongwei Li, Jun Zhang*, Xiaokun Yang, Min Ye, Wentao Jiang, Jing Gong, Yaogang Tian, Liang Zhao, Weitian Wang, Zhi Xu. Bayesian optimization based extreme gradient boosting and GPR time-frequency features for the recognition of moisture damage in asphalt pavement[J]. Construction and Building Materials, 2024, 434, 136675. (SCI, Q1, IF=7.4)
3. Hongwei Li, Jun Zhang*, Min Ye, Zhong Cheng, Chenguang Wu, Yaogang Tian. Automated detection of multi-scale voids in airport runways with clutter suppression method from 3D GPR data[J]. Construction and Building Materials,2025,492:142779. (SCI, Q1, IF=7.4)
- 4.Jun Zhang, Hongwei Li, Xiaokun Yang, Zhong Cheng, Patrick X.W. Zou, Jing Gong, Min Ye.A novel moisture damage detection method for asphalt pavement from GPR signal with CWT and CNN[J].NDT & E International,2024, 145:103116 <https://doi.org/10.1016/j.ndteint.2024.103116>.

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Research interests:

1. High-end equipment intelligent manufacturing
2. Machine vision and deep learning
3. Robotics and intelligent control


Education experience:

1. B.S.: 2007-2011, Shandong University, Mechanical Engineering
2. Master's and Ph.D.: 2011-2017, Xi'an Jiaotong University, Mechanical Engineering
3. Visiting Scholar: 2015-2016, Civil and Transportation Engineering, Norwegian University of Science and Technology, Prof. Amund Bruland's team

Represent publications:

1. Geng Q*, He F, Ma M, Liu X, Wang X, Zhang Z, Ye M (2022) Application of full-scale experimental cutterhead system to study penetration performance of tunnel boring machines (TBMs). ROCK MECH ROCK ENG.
2. Geng Q*, He F, Lu Z, Liu X, Wang X, Ye M (2022) Geometry evolution of mesoscopic mechanical structures during the rock fragmentation process induced by tunnel boring machine (TBM) cutters. Royal Society Open Science 9:1-23 doi:10.1098/rsos.211630
3. Geng Q*, Wei ZY, Ren JH (2017). New rock material definition strategy for FEM simulation of the rock cutting process by TBM disc cutters [J]. Tunnelling and Underground Space Technology, 65: 179-186.
4. Geng Q*, Zhang HJ, Liu XH, et al (2019). Numerical study on the rock muck transfer process of TBM cutterhead with clump strategy based on discrete element method [J]. Tunnelling and Underground Space Technology, 91: 103000.
5. Geng Q*, Wei ZY, Meng H, et al. Free-face-Assisted Rock Breaking Method Based on the Multi-stage Tunnel Boring Machine (TBM)[J]. Rock Mechanics and Rock Engineering, 2016, 49:4459-4472.

Biography:

Li Jia 李嘉		
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Research interests:

- 1. Robotics in exoskeleton
- 2. Development platform for Digital Twin application
- 3. Embedded System in mobile Robot

Education experience:

- 1. 201409-201712, Northwestern Polytechnical University University, Aerospace Science and Technology, Ph. D.
- 2. 201109-201403, Northwestern Polytechnical University University, aerospace propulsion theory and engineering, msc
- 3. 200709-201106, Northwestern Polytechnical University University, automation, bachelor


Represent publications:


1.Jia Li, et al. Effects of a Combination Impeller on the Flow Field and External Performance of an Aero-Fuel Centrifugal Pump, Energies[J]. 2020.

2.Jia Li, et al. Performance Improvement of a High-speed Aero-fuel Centrifugal Pump through Active Inlet Injector[J]. I Mech. Part G, 2020.

Biography:

Long-term engaged in rotating machinery, hydraulic component performance and reliability design and research work, this paper deals with the parametric design and simulation of centrifugal pump, centrifugal compressor, hydraulic system, data-driven agent model, performance degradation model, performance and reliability integrated design and collaborative optimization design. At present, he is in charge of two sub-projects of major national-level science and technology projects and one general project of natural science basic research program of Shaanxi Province (youth) , participate in one general project of Natural Science Basic Research Program of Shaanxi Provincial Science and Technology Program (Youth) , one general project of International Science and Technology Cooperation Program of key research and development program of Shaanxi Provincial Science and Technology program, chair 1 horizontal topic. In addition, 14 high-quality papers were published, including 2 by SCI and 11 by EI.

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Research interests:		
<p>1. Research on Deformation, Damage, Fatigue and Fracture of Materials and Structures: Aiming at the application and future development needs of modern engineering equipment, this research focuses on conducting mechanical property tests, theoretical analysis and application research on metals, advanced composite materials and their structures.</p> <p>2. Research on Structural Design, Analysis and Optimization of Special Vehicles and Construction Robots: In accordance with the national development requirements for high-end equipment, this research leverages the industry's distinctive advantages to carry out long-term development of special engineering vehicles and construction robots, and addresses the technical bottlenecks in the development strategy of "mechanization replacing manpower, automation reducing manpower, and intelligent unmanned operation".</p> <p>3. Research on Digital Twin Technology for Structural Reliability of Complex Mechanical Equipment: Digital twin technology for full-life-cycle structural reliability is an urgent need for the development of high-end equipment. By utilizing the technical advantages of the research team, this research conducts R&D and application demonstrations for intelligent operation and maintenance of complex equipment based on new materials, new theories and new technologies.</p>		
Represent publications:		
<p>1. Chenyu Liu, Binhua Wang, Pengmin Lu, Ahmat Djime Moussa Godi, Rui Han, Datao Li.Enhancing compressive damage resistance and post-damage stability of CFRP laminates in anchorage systems via aramid pulp interlayer and resin pre-coating[J].Engineering Failure Analysis,2025,182:110050.</p> <p>2. Rui Han,Yunfei Xiao,Binhua Wang*.Research on fatigue life of carbon fiber reinforced polymer strengthened single-sided butt welded joints utilizing resin pre-coating for strong adhesive bonding [J]. Engineering Failure Analysis, 2025,167:109045.</p> <p>3. Li Y, Lu PM *, Wang BH*, Hu XZ , Li DT, Xiang QY. Evaluation of the fracture toughness of butt-welded joints using the boundary effect model [J]Engineering Fracture Mechanics, 2022, 274: 10877.</p>		

Min Ye 叶敏		
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Research interests:

1. hybrid electric vehicle
2. mechatronics control of construction machinery
3. hydraulic power

Education experience:

1. Xi'an Jiaotong University: Xi'an, Shaanxi, CN , Ph.d
2. Chang'an University: Xi'an, Shaanxi Province, CN, Professor

Represent publications:

1. Remaining useful life prediction of lithium-ion batteries based on stacked autoencoder and gaussian mixture regression JOURNAL OF ENERGY STORAGE, 47: 103558-103569 Meng Wei, Min Ye*, Qiao Wang, Xinxin Xu, Jean Pierre Twajamahoro
2. Remaining useful life prediction for 18650 sodium-ion batteries based on incremental capacity analysis ENERGY, 261: 125151-125163 Meng Wei, Palani Balaya, Min Ye, Ziyu Song*
3. Co-estimation of state of charge and capacity for lithium-ion battery based on recurrent neural network and support vector machine ENERGY REPORTS, 7:7323-7332 Qiao Wang, Min Ye*, Meng Wei, Gaoqi Lian, Chenguang Wu
4. Intelligent optimization of EV comfort based on a cooperative braking system PROCEEDINGS OF THE INSTITUTION OF MECHANICAL ENGINEERS PART D, 235: 2904- 2916 Lingying Zhao, Min Ye*, Xinxin Xu
5. SOC estimation for lithium-ion batteries based on a novel model IET POWER ELECTRONICS, 14:2249-2259 Jiabo Li, Min Ye*, Kangping Gao, Xinxin Xu

Biography:

Min Ye currently works at the School of Construction Machinery, Chang'an University. Min does research in Control Systems Engineering, Instrumentation Engineering and Electrical Engineering.

Zhang Xinrong 张新荣		
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Research interests:

1. Mechanical Design;
2. Dynamics and Control for Mechanical System
3. Electronically Controlled Hydraulic System

Education experience:


1. Chang'an University, PhD
2. Xi'an Highway Institute, Master

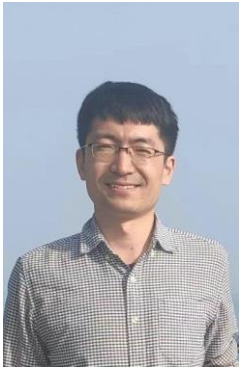
Represent publications:

1. A novel modeling and control approach considering equality and inequality constraints based on generalized Udwadia-Kalaba equation[J]. Nonlinear Dynamics, 2023, 111 (18): 17109-17122
2. Optimal robust constraints-following control for rail vehicle virtual coupling, Journal of Vibration and Control, 2023, 29(5-6):1352-1365
3. Optimal Robust Vehicle Motion Control Under Equality and Inequality Constraints, Asian Journal of Control, 2023, 25 (3): 2031-2047
4. Path tracking control for autonomous vehicles with saturated input: A fuzzy fixed-time learning control approach. IET Intelligent Transport Systems, 2022, 16(4): 531–542
5. A Novel Robust Control of Uncertain Furuta Pendulum Based on a General Lyapunov Function[J]. Journal of Dynamic Systems Measurement and Control, 2019, 141(11): 111010-1:13

Biography:

Dr. Zhang's research has covered an area in mechanical engineering, including automatic transmissions for cars, ECU for automatic transmissions, Auto leveling system controller for asphalt paver, controller design for heavy vehicles, controlling system for synchronous pavement dressing machine. Dr. Zhang has supervised over 50 graduate theses in mechanical engineering. His research has resulted in nearly 90 papers and publications in leading journals and conference proceedings as well as several patents. His research is funded by both government agencies and industry.

WANG Guoqing 王国庆		
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Research interests:		
1. Robotics in exoskeleton		
2. Development platform for Digital Twin application----only for doctoral students		
3. Embedded System in mobile Robot		

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Research interests:		
1. Mechanical engineering;		
2. automation equipment;		
Represent publications:		
1. Comparison of mandrel and counter-roller spinning methods for manufacturing large sheaves, 《The International Journal of Advanced Manufacturing Technology 》 , 2018.11;		
2. Investigation of Groove Shape Variation during Steel Sheave Spinning, 《Materials》 , 2018.11;		
3. The Rollers’ Offset Position Influence on the Counter-Roller Flow-Forming Process 《METALS》 ,2022.09 ;		

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Research interests:

1. Modeling and control of manufacturing system
2. Manufacturing system planning and scheduling
3. Intelligent mobile robot
4. Manufacturing informatization technology

Education experience:


1. 1980.8-1984.7 Bachelor degree, Department of Mechanical Manufacturing, Jiangsu Institute of Technology
2. 1999.3-2002.6 Doctoral candidate, Department of Aircraft Manufacturing, Northwestern Polytechnical University

Represent publications:

1. Sun MK, Cai ZY, Zhang HN. A teaching-learning-based optimization with feedback for L-R fuzzy flexible assembly job shop scheduling problem with batch splitting[J]. Expert Systems With Applications, 2023, 224.
2. Sun MK, Cai ZY, Zhao NN. Design of intelligent manufacturing system based on digital twin for smart shop floors[J]. International Journal of Computer Integrated Manufacturing, 2022, 36(4):542-566.
3. Sun MK, Cai ZY, Yang CY, Zhang HN. Digital twin for energy-efficient integrated process planning and scheduling[J]. The International Journal of Advanced Manufacturing Technology, 2023, 127(7-8):3819-3837.

Biography:

Zongyan Cai is a Professor of Mechanical Engineering at Chang'an University. He received his Ph.D. from Northwestern Polytechnical University, P. R. China in 2002. He had authored or coauthored more than 80 refereed papers. He presided over one national science fund and three provincial and ministerial science funds. He mainly participated in 5 provincial and ministerial key scientific research projects and obtained 11 national invention patents. His research interests include Manufacturing system planning and scheduling, Intelligent mobile robot, modeling and control of manufacturing system, signal processing and intelligent fault diagnosis.

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Research interests:

- 1. Ergonomics
- 2. Product Innovation Design
- 3. Design Decision Making

Education experience:


- 1. 2010.09-2013.12 Northwestern Polytechnical University, Ph. D.
- 2. 2008.09-2011.03 Northwestern Polytechnical University, Master degree
- 3. 2004.09-2008.06 Northwestern Polytechnical University, Bachelor degree

Represent publications:

- 1. Yanpu Yang , Lingwei Lyu , Zhongjian Han , et al. Ergonomics assessment of the overhead maintenance of vehicle-mounted radar antenna using digital human modelling [J]. Advanced Design Research, 2023, (1): 63-70.
- 2. Yanpu Yang, Lingwei Lyu, Qinxia Yang, Yikun Liu, Weilan An. Trust-based consensus reaching process for product design decision-making with heterogeneous information[J]. Advanced Engineering Informatics, 2023, 56: 101934.
- 3. Yanpu YANG, Qinxia YANG, Weilan AN, Zheng GONG. Nonlinear fusion method for multistage product design decision-making using plant growth simulation algorithm[J]. Advanced Engineering Informatics, 2022, 53: 101712.
- 4. Yao Song, Yanpu Yang, Peiyao Cheng. The Investigation of Adoption of Voice-User Interface (VUI) in Smart Home Systems among Chinese Older Adults[J]. Sensors, 2022, 22, 1614.
- 5. Yanpu YANG, Junwen SHI, Gangfeng WANG. An Integrated Framework of Product Kansei Decision-Making Based on Hesitant Linguistic Fuzzy Term Sets[C]. HCII 2020, LNCS 12423 pp. 352–366.

Biography:

Young Editorial Board of *Advanced Design Research* and *Journal of Machine Design*

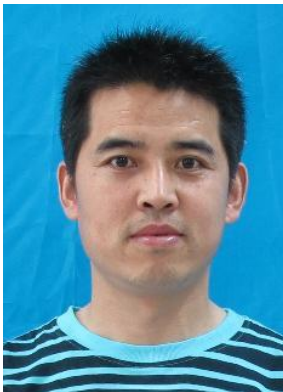
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Research interests:

- 1. Digital Twin and Intelligent Maintenance for Vehicle Components
- 2. Power Matching and AI Control for Engineering Equipment Powertrains
- 3. Intelligent Monitoring and Recognition for Construction Machinery and Their Operational Quality

Represent publications:

- [1] Qi Geng, Yufeng Huang, Jianxun Chen, Xuebin Wang, Weiwei Liu, Yanbin Luo, Zeyu Zhang, Min Ye.Prediction of rock-breaking forces of tunnel boring machine (TBM) disc cutter based on machine learning methods[J].Tunnelling and Underground Space Technology incorporating Trenchless Technology Research,2025,163106682-106682.
- [2] Cao Jing, Qian Qide, Liu Xinzhou, Bu Zhengfeng, Zhang Zeyu, Hui Jizhuang.Transient Flow Field Characteristics and Experimental Research of Super-flat Torque Converter[J].Construction Machinery and Equipment,2025,56(01):126-130+12.
- [3] Geng Qi, Huang Yufeng, Jin Xinyu, Wang Ke, Wang Xuebin, Zhang Zeyu.Load-deformation characteristics of a new “flexible-steel concrete” segment in shield tunnels[J]. Journal of Railway Science and Engineering,2025,22(07):3181-3193.
- [4] Zhang Zeyu, Guo Xu,Wu Chengbin, et al.Intelligent Monitoring System of Pavement Compaction Quality with Multi-source Information Fusion[J].Highway,2024,69(10):8-15.
- [5] Duan Yu, Liu Xinzhou, Hui Jianwei, Bu Zhengfeng, Zhang Zeyu, et al.Research on Wavelet Packet Threshold Denoising for Vibration Signal of Torque Converter[J].Construction Machinery and Equipment,2024,55(06):140-144+13.

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Research interests:

1. Dynamic simulation and Finite element analysis of construction machinery
2. Systematic dynamics, computational mechanics with application to construction
3. Intelligent control method and technology of construction for Civil engineering
4. Mechanism and stress analysis of vibrating compaction

Represent publications:

1. Qingzhe Zhang, Qian Zhang, Meng Ji. Dynamic Mechanical Properties of Soil Based on Fractional Order Differential Theory. Soil Mechanics and Foundation Engineering, 2018, 55(6): 366-373. (SCI 检索: 000462034000002)
2. Qingzhe Zhang, Zhi Qin. Application of machine vision technology in road detection. Civil Engineering Journal, 2018, 27(4): 513-524.(EI 检索: 20191006600210)
3. Qingzhe Zhang, Meng Ji, Qian Zhang, Zhi Qin. Study on De-noising Methods for Soil Compressive Stress Signal During Vibration Compaction. Civil Engineering Journal,2017,26(4):361-376. (EI 检索: 20180104613586)
4. Qingzhe Zhang, Baogui Yang, Jingliang Dai, Leilei Cao. Analysis on Three-dimensional Stress Distribution in Subgrade during the Vibrating Compaction. Jordan Journal of Civil Engineering,2017,11(1),40-46.(EI 检索: 20172603862594)
5. ZHANG QING-ZHE, YAN BING, DAI JING-LIANG, YANG BAO-GUI. Signal Analysis on Soil Stress from Vibrating Compaction Based on Wavelet Transform. ARCHIVES OF CIVIL ENGINEERING, 2014,60(2):257-268. (EI 检索: 20154101374686).

Yuqin Ma 马玉钦		
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Research interests:

1. Design, preparation, simulation, characterization and application of composites
2. Intelligent material and structure system
3. Advanced design and manufacturing technology of machinery

Education experience:

1. He earned his Ph.D. degree at Mechanical manufacturing and its automation in Northwestern Polytechnical University (NWPU), Xi'an, China.

Represent publications:

1. Yi Xu, **Yuqin Ma***, etc. Influence of Extrusion Pressures on Shape Memory Properties of Carbon Fiber/Basalt Fiber Hybrid Composites with Graphene Oxide Fabricated by the Vacuum Infiltration Hot Pressing System[J]. Polymer Composites,2023, 44(9):5910-5923.
2. Yi Xu, **Yuqin Ma***, etc. Influence of Hybrid ratios on Shape Memory Properties of Basalt/Carbon Fiber Hybrid Composites with Graphene Oxide Prepared by VIHPS[J].Fibers and Polymers,2023,10.1007/s12221-023-00282-w.
3. Feichao Cai, **Yuqin Ma***, etc. Effect of different curing temperatures on the damping properties of GO-CF/EP composites[J].Polymer Composites, 2022,<https://doi.org/10.1002/pc.27181>.
4. **Yuqin Ma***, Fei Li, etc. Influence of Extrusion Temperature on Properties of Graphene Oxide-Carbon Fiber/Epoxy Composite Prepared by Vacuum Infiltration Hot-Press-Forming Experimental System[J]. Nanomaterials, 2022, 12(21):3839.
5. **Yuqin Ma***, Jie Wang, etc. Investigation on optimization of preparation process parameters of GO-CF/SMP composites prepared by VIHPS[J]. Journal of Materials Science, 2022, 57, 4541-4555.

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Research interests:

- 1. Precision and Ultra-Precision Machining Process Development
- 2. Robot-assisted Machining and Intelligent Manufacturing
- 3. Medical Implant Design and Manufacturing

Education experience:

- 1. Ph.D., University of Toledo, USA
- 2. M.S., University of Toledo, USA
- 3. B.S., Chongqing University, China

Represent publications:

- 1. Machine vision-based recognition of elastic abrasive tool wear and its influence on machining performance, Journal of Intelligent Manufacturing, 2023.
- 2. A novel method to combine fused deposition modelling and inkjet printing in manufacturing multifunctional parts for aerospace application, Journal of Materials Research and Technology, 2023.

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Research interests:

1. Design and development of highway maintenance equipment
2. Numerical simulation
3. Electromechanical and hydraulic integration
4. Highway intelligent equipment and digital construction

Represent publications:

1. Ma Dengcheng, Liu Chengqi, Gui Xue. Application of 915 MHz microwave in asphalt pavement regeneration heating[J]. Journal of Harbin Institute of Technology, 2022, 54(9): 44-53. (Chinese Area A)、 ("World Academic Influence Q1 Journal" (WAJCI-Q1 Journal))
2. Ma Dengcheng, Cao Yuxuan, Gui Xue. Structural design and simulation verification of infrared hot air collaborative heating test bench[J]. Journal of Harbin Institute of Technology, 2023, 55(3): 1-13. (Chinese Area A)、 ("World Academic Influence Q1 Journal" (WAJCI-Q1 Journal))

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Research interests:		
1. Low-carbon manufacturing		
2. Additive manufacturing		
3. Smart manufacturing		
Represent publications:		
1. Kai Ding, Anjie Li, Jingxiang Lv* , Fu Gu*, Decarbonizing ceramic industry: Technological routes and cost assessment[J]. Journal of Cleaner Production, 2023.		
2. Jizhuang Hui, Hao Zhang, Jingxiang Lv* , ChulHee Lee, et al. Investigation and prediction of nano silver lines quality upon various process parameters in inkjet printing process based on an experimental method[J]. 3D Printing and Additive Manufacturing, 2023.		
3. Hao Zhang, Jizhuang Hui, Jingxiang Lv* , ChulHee Lee, et al. An innovative method combining fused deposition modelling and inkjet printing in manufacturing multifunctional parts for aerospace application[J]. Journal of Materials Research and Technology, 2023, 24: 4405-4426.		

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Research interests:

1. Mechanical Signal Processing and Modal Analysis,
2. Deep Learning and Intelligent Systems
3. Mechanical Reliability Analysis, Diagnostics and Life Prediction

Represent publications:

1. Zhang Xiaoli, Xia Yong. Parameters identification of closely spaced modes with the covariance driven stochastic subspace and damping ratio dispersion method [J]. Journal of Vibration and Control. 2023, Vol. 0(0) 1–14.
2. Xia Yong, Zhang Xiaoli, Yan Qiang, et al. Assembly tightness detection of bolt connections using gray-level images with high-order cumulants [J]. Journal of Mechanical Science and Technology 2023, 37(10): 4981-8.
3. Weihua Li, Xiaoli Zhang, Ruqiang Yan. Intelligent Fault Diagnosis and Health Assessment for Complex Electro-Mechanical Systems[M]. Springer. 2023.
4. Zhang, X.; Yang, J.; Zhu, W.; Li, G. A Non-Destructive Health Evaluation Method for Wooden Utility Poles with Frequency-Modulated Empirical Mode Decomposition and Laplace Wavelet Correlation Filtering. Sensors 2022, 22, 4007.

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<i>Research interests:</i>		
1.Mechatronics integration		
2.Visual inspection		
3.Hybrid engineering machinery		
<i>Represent publications:</i>		
1. Zhao Yong. Analysis of pressure fluctuation and internal flow characteristics of axial flow pumps under off design conditions, Journal of Hydroelectric Engineering, 2023, 5		
2. Zhao Yong. Hydraulic optimization and performance analysis of high rotating speed pump as turbine, Journal of Hydroelectric Engineering, 2023, 3		
3. Zhao Yong. Analysis of pressure pulsation in high rotating speed pump as turbine in seawater desalination.,2022,4		
5. Zhao Yong. Numerical simulation and experiment of explosive welding of TA/Al/5052 composite plate, Ordnance Material Science and Engineering, 2022,03		

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Research interests: 1. Mechanical crushing mechanism of geotechnical engineering and its material damage 2. Performance and wear characteristics of cutting tools 3.Gas-solid coupling dynamics of particles with complex characteristics 4.Mechanical vibration and noise identification 5. Sound source localization		
Represent publications: 1. Numerical simulation of rock fracture characteristics under combined action of impact and splitting, Noise and Vibration Worldwide, 2024, 55(9-10) 538–552.(EI) 2. Wear load analysis of conical cutter crushing rock based on SPH to SPH interaction method Eksploatacja i Niezawodność – Maintenance and Reliability, 2025, 27 (1): 193899.(SCI) 3. Flow control method in concrete particles pneumatic sweeping process based on image recognition and OPC protocol, Powder Technology, 2024, 442: 119867.(SCI) 4. Optimization method for rotating airflow sweeping of concrete fragments based on combined back propagation neural network and NSGA-II algorithm, Powder Technology , 2026 , 467 : 121513.(SCI)		

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Research interests:

1. Research on Electro-Hydraulic Control Technology for Construction Vehicles.
2. Research on Hydraulic Suspension Systems for Construction Machinery.
3. Research on Electro-Mechanical Transmission Technology for Construction Machinery.

Represent publications:

1. Performance-Matching Optimization Design of Loader-Hydraulic System Based on Hydrodynamics Analysis, processes, 2022-08-01.
2. MECHANICAL TRANSMISSION SYSTEM OF LOADER BASED ON HYDRAULIC HYBRID TECHNOLOGY, THERMAL SCIENCE, 2021,25.

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Research interests:		
1. Theory and analysis of complex gear meshing 2. Gear performance analysis and optimization 3. Gear CNC machining technology		
Education experience:		
1. 2005-2011 : Ph.D. in Mechanical Engineering, Northwestern Polytechnical University 2. 2011-2013 : Postdoctoral Research Station of Aeronautics and Astronautics Science and Technology, Northwestern Polytechnical University 3. 2018-2019 : Visiting Scholar, Rochester Institute of Technology, USA		
Represent publications:		
1. Su Jinzhan, Fang Zongde, Cai Xiangwei. Design and analysis of spiral bevel gears withseventh-order function of transmission error. Chinese Journal of Aeronautics, 2013,26(5):1310-1316.(SCI&EI) 2. Su Jinzhan, Fang Zongde. Mathematical model of spherical gears with helix trace. 2011 3rd International Conference on Computer and Network Technology, V4: 121-124. (EI)		

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Research interests:

1. Visual perception and bionics (machine single/double/compound eye stereo vision)

2. Autonomous positioning, status recognition, intelligent monitoring and control of construction machinery based on machine vision

3. Road/bridge automatic detection technology based on drones or crawling robots


4. Other applications of machine vision in the industrial field


Represent publications:


1. Xiaohua Xia, Haoming Xiang, Yusong Cao, Zhaokai Ge, Zainan Jiang. Feature extraction and matching of humanoid-eye binocular images based on SUSAN-SIFT algorithm[J], Biomimetics, 2023, 8(2), 139.

2. Xufang Qin, Xiaohua Xia, Pengju Yue. Visual 3D perception method based on the monocular single-degree-of-freedom rotation[C], 2023 International Symposium on Intelligent Robotics and Systems (ISoIRS), Changsha, China, 2023: 127-131.

3. Xiaohua Xia, Jian Chen, Chang Dong, Qian Zhao, Yongbiao Hu, Haiying Cheng. A portable visual assistant system for driving crawler construction machinery up and down flat transport vehicle[C], 2022 International Conference on Mechanical and Electronics Engineering, 2022: 246-250.

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Research interests:		
1. Special unmanned system design		
2. Unmanned aerial vehicle intelligent inspection for smart city		
3. Dynamics and control for unmanned aerial vehicle		
Represent publications:		
4. Strict finite-time sliding mode control for a tethered space net robot		
5. Reinforcement Learning-Based Pose Coordination Planning Capture Strategy for Space Non-Cooperative Targets		
6. Finite-time stability of an underactuated tethered satellite system		
7. Trajectory Tracking Control for Quadrotor Robot Subject to Payload Variation and Wind Gust Disturbance		
8. Controller development and validation for a small quadrotor with compensation for model variation		

<div> <div>Cao Wei 曹伟</div> <div> <div>Academic title</div> <div>Lecture</div> </div> <div> <div>Email</div> <div>cw334926@163.com</div> </div> <div> <div>Tel No.</div> <div>15229047140</div> </div> <div> <div>Home page</div> <div> <div>1. English website: https://js.chd.edu.cn/gcjxy/cw102_en/list.htm </div> <div>2. Chinese website: https://js.chd.edu.cn/gcjxy/cw102/list.htm </div> </div> </div> </div>		
<p>Research interests:</p> <ol style="list-style-type: none"> 1. Lubrication and Contact Fatigue 2. Theories and Methods for Contact and Interfacial Mechanics. 3. Dynamics of Transmission Systems 4. Machine Learning and Applications <p>Represent publications:</p> <ol style="list-style-type: none"> 1. Liu C, Cao W, Song X, et al. A semi-analytical method of three-dimensional dual-phase-lagging heat conduction model [J]. International Journal of Heat and Mass Transfer, 2024, 218: 124720. <p>(Corresponding author)</p> <p>Biography:</p> <p>His research fields are tribo-dynamics, reliability of transmission systems, machine learning and applications. Currently, Dr Cao is an expert committee member of Journal of Jiamusi University (Natural Science Edition), a reviewer for the National Natural Science Foundation of China, a blind reviewer for the postgraduate degree thesis of the Ministry of Education, and a reviewer for journals such as Nonlinear Dynamics, Tribology International, and Industrial Lubrication and Tribology. He was selected into the Young Talent Support Program of Shaanxi Provincial Science Association and the "Chang'an Scholar" Talent Support Program (Youth Academic Backbone) of Chang'an University.</p> <p>Dr Cao is hosting the National Natural Science Foundation Youth Project, China Postdoctoral Project, Shaanxi Provincial Natural Science Foundation Project, and Enterprise Technology Research and Development Project, etc. He participated in national key research and development projects and national defense basic scientific research projects. Dr Cao published more than 30 SCI/EI papers in domestic and foreign journals such as Friction, Tribology International, Composite Structures, and Tribology Journal.</p> <p>The gear transmission meshing analysis software and analysis method of the tribological characteristics of the spiral bevel gear developed by Dr Cao have been applied to enterprises. The relevant research results have won the first prize of “the Shandong Provincial Machinery Industry Science and Technology Award”, the third prize of “the China Machinery Industry Science and Technology Progress Award”, and the special report of the postdoctoral program in Shandong Province.</p>		

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Research interests:

The main direction is 'Research on high-precision surface acoustic wave pressure sensors', including sensor structure and process design, finite element simulation and analysis, and sensor performance testing.

Education experience:

1. 2000.09-2004.07, Xi'an Jiaotong University, Bachelor
2. 2006.01-2007.03, University of Birmingham, UK, Master
3. 2007.04-2012.12, University of Birmingham, UK, PhD

Represent publications:

1. Juan Ren, Kanat Anurakparadorn, Hairong Gu, Minghui Zhao and Xueyong Wei, Design of SAW Sensor for Longitudinal Strain Measurement with Improved Sensitivity, Microsystem Technologies, 25(1), 351-359, 2019.
2. Juan Ren, Kanat Anurakparadorn, Xueyong Wei, Improving the SAW pressure sensor sensitivity based on finite element modeling, 2016 IEEE International Frequency Control Symposium. 9-12 May 2016, New Orleans, USA.
3. Juan Ren, Michael Ward, Peter Kinnell, Russell Craddock and Xueyong Wei, Plastic deformation of micromachined silicon diaphragms with a sealed cavity at high temperatures, Sensors, 2016, 16(2), 204.
4. Juan Ren, Mike Ward, Peter Kinnell, Martine Gear, Russell Craddock, The Experiment to Study the Behaviour of Microfabricated Silicon Diaphragms at 900°C, Microelectronic Engineering, Vol.87, pp.1213-1216, 2010.
5. Juan Ren, David Cheneler, Mike Ward and Peter Kinnell, The Mechanical Behaviour of Silicon Diaphragms for Micromachined Capacitive Pressure Sensor, Advances in Science and Technology, Vol. 54, pp.422-427, 2008.

Biography:

2013.12-2016.7, postdoctoral fellow, School of Mechanical Engineering, Xi'an Jiaotong University

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Research interests:

1. Electroactive materials and application
2. Mechanical design for electrical engineering
3. Industrial inspection based on deep learning

Represent publications:

1. Zhang, C., Zhang, B., Qin, J., Sun, Y., Liu, X., Tang, Z. H., & Zhu, Z. (2025). Low-Electric-Field Driven Smart Window Enabled by Poly (vinyl chloride) Gel with Carbon Nanotube Transparent Electrodes. ACS Applied Polymer Materials, 7(18), 12166-12175.
2. Soft lenses with large focal length tuning range based on stacked PVC gel actuators. Smart Materials and Structures, 33(9), 095002.


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Research interests:

1. Intelligent manufacturing
2. Surface engineering
3. Robot trajectory planning
4. Numerical modeling

Represent publications:

1. **Ren J**, Sun Y, Ahmad R**, Ma Y*. Coating thickness optimization for a robotized thermal spray system. Robotics and Computer-Integrated Manufacturing 2023, 83: 102569. (SCI, JCR Q1, IF = 10.1)
2. **Ren J**, Zhou T, Rong Y, Ma Y**, Ahmad R*. Feature-based modeling for industrial processes in the context of digital twins: A Case Study of HVOF Process. Advanced Engineering Informatics 2022, 51: 101486(1-22). (SCI, JCR Q1, IF = 8.0)
3. **Ren J**, Zhang G, Rong Y, Ma Y*. A feature-based model for optimizing HVOF process by combining numerical simulation with experimental verification. Journal of Manufacturing Processes 2021, 64: 224-238. (SCI, JCR Q2, IF = 5.0)
4. **Ren J**, Ahmad R, Li D, Ma Y*, Hui J*. Industrial applications of digital twins: A systematic investigation based on bibliometric analysis. Advanced Engineering Informatics, 2025, 65 (B): 103264. (SCI, JCR Q1, IF = 8.0)

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Research interests:

1. Lightweight high-DoF robotic structures & advanced-material mechanics;

2. Multi-modal SLAM and human-aware motion planning for mobile manipulators;

3. Human–robot collaboration: comfort models, intent prediction, shared control;

4. Adaptive / MPC+RL control for nonlinear high-DoF & humanoid systems;

5. Multi-agent path planning & formation control: distributed task allocation, real-time conflict resolution, heterogeneous UAV–UGV teaming;

6. AI-driven Sim-to-Real toolchain: deep RL, generative scene creation, cloud-edge co-simulation

Represent publications:

1. Jin, X., Ding, W., Baumert, M., Wei, Y., Li, Q., Yang, W., & Yan, Y. (2024). Mechanical Design Analysis, and Dynamics Simulation of a Cable-Driven Wearable Flexible Exoskeleton System. Technologies, 12(12), 238.(SCI 1 ☒)

2. Jin, X., Ding, W., Li, Q., Yang, W., & Wei, Y. (2024, October). Mechanical design and analysis of cable-driven wearable flexible exoskeleton system. In International Conference on Precision Engineering and Mechanical Manufacturing (PEMM 2024) (Vol. 13285, pp. 17-28). SPIE. (EI).

3. Wei Yan, Yin Huangfei, Tian Xiaofeng, and Ji Xianyou. Base Placement and Human-like Motion Planning for a Humanoid Mobile Dual-arm Manipulator System. 2022 41st Chinese Control Conference (CCC), 3698–3704, July 25-27, Hefei, 2022.(EI).