Geng Qi 耿麒

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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:

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

Education experience:

1.

2.

Represent publications:

1.

- 2.
- 3.
- 4.
- 5.

Biography:

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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

Education experience:

1. Received bachelor's degree from China University of Petroleum

2. Received Ph.D. from Xi 'an Jiaotong University

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.

4. Xiaohua Xia, Yunshi Yao, Lijuan Yin, Shida Wu, Haochen Li, Zibing Yang. Multi-focus image fusion based on probability filtering and region correction[J], Signal Processing, 2018, 153: 71-82.

5. Xiaohua Xia, Gang Dang, Yunshi Yao, Jia Liang. Image registration model and algorithm for multi-focus images[J], Pattern Recognition Letters, 2017, 86: 26-30.

Biography:

He is the director of Institute of Quality Control, Chang'an University, and the leader of Engineering Equipment Intelligent Vision Scientific Research Team.

Zhang Qingzhe 张青哲

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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

Education experience:

1. Sept.2004–Jul.2010 Chang'an University Ph.D. Highway & Railway Engineering

2.Sept.1996–Apr.1999 Xi'an University of Technology M.S. Mechanical Design and Manufacturing,

3. Sept.1989–Jul.1993 Xi'an University of Science and Technology B.S. Mechanical Design and Manufacturing

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). 6. Qingzhe Zhang, Jingliang Dai, Baogui Yang, Yapan Zhao. Analysis on Compressive Stress Signals from Vibrating Compaction on Loess. Advanced Materials Research. 2013,726-731:3137-3143.(EI 检索: 20134116834173).

7. Zhang Qingzhe et al. Analysis on compaction property of loess by vibrating roller[J]. Journal of Chang'an University : Natural Science Edition, 2010,30(4):1-5.

 8. Zhang Qingzhe et al. Analysis on Compressive Stress Signals from Vibrating Compaction on Loess[J]. Journal of Highway and TransportationResearch and Development, 2010,27(7):8-11,17.
 9. Zhang Qingzhe et al. Loess Property and Vibrating Compaction Test[J]. Journal of zhengzhou University :Engineering Science , 2010,31(3):92-95.

 Zhang Qingzhe et al. Transient Stress Signal Analysis Based on Wavelet Transform[J]. Microelectronics & Computer, 2010,27(5):206-208.

11. Zhang Qingzhe et al. Study on Identification of Soil Parameters in Vibrating Compaction[J].Journal of Highway and TransportationResearch and Development, 2009,26(8):6-10.Biography:

Zhang Qingzhe, male, born in 1971 in Hancheng, Shaanxi. I currently work in the School of Construction Machinery, Chang'an University, as an associate professor with a doctoral degree. In 2010, I obtained a doctoral degree in Highway & Railway Engineering from Chang'an University. My main research directions include vibration compaction mechanism, quality control of engineering machinery operation, and dynamic simulation analysis and research of engineering machinery operation process. Has published 20 academic papers, including 1 SCI and 5 EI.

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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.

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.

Biography:

We warmly welcome joining our research team to conduct innovative research and applications.

Juan Ren 任娟

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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 Cradock, 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

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, Professer

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, Ziyou 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 modelIETPOWERELECTRONICS, 14:2249-2259Jiabo 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 Xiaoli 张小丽

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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
- Education experience:
- 1. 2002.9 2006.7 Northwestern Polytechnical University
- 2. 2006.9 -2011.12 Xi'an Jiaotong University

Represent publications:

- Zhang Xiaoli, Xia Yong. Parameters identification of closely spaced modes with the covariancedrivern stochastic subspace and damping ratio dispersion method [J]. Journal of Vibration and Control. 2023, Vol. 0(0) 1–14.
- 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.
- Weihua Li, Xiaoli Zhang, Ruqiang Yan. Intelligent Fault Diagnosis and Health Assessment for Complex Electro-Mechanical Systems[M]. Springer. 2023.
- 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.
- Wang B, Zhang X, Xing S, et al. Sparse representation theory for support vector machine kernel function selection and its application in high-speed bearing fault diagnosis [J]. ISA Trans, 2021, 118: 207-18.
- 6. Zhang X, Yang J, Wang B, et al. An inverse decaying frequency modulation EMD method for closely spaced modal parameter identification in high precision with Laplace wavelet correlation filtering [J]. Measurement Science and Technology, 2020, 31(10).
- Baojian Wang, Xiaoli Zhang, Sun Chuang, Chen Xuefeng. A Quantitative Intelligent Diagnosis Method for Early Weak Faults of Aviation High-speed Bearing [J]. ISA transactions. 2019.
- 8. Zhang X, Yan Q, Yang J, et al. An assembly tightness detection method for bolt-jointed rotor

with wavelet energy entropy [J]. Measurement, 2019, 136: 212-24.

Biography:

Zhang Xiaoli, Doctor of Mechanical Engineering, Ph.D./Master's Supervisor, Associate Professor, mainly engaged in mechanical equipment health monitoring and intelligent maintenance and other areas of research, who has presided the project of National Natural Science Foundation of China, Pre-research Joint Fund project of the Ministry of Education and the Ministry of Equipment of China, the Shaanxi Provincial Association of Colleges and Universities of Science and Technology Young Talent Support Program, Shaanxi Provincial Natural Science Fund, and some other programs. She has published more than 30 SCI/EI papers in academic journals and has obtained more than 10 Chinese invention patents and software copyrights.

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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.

Cao Wei 曹伟

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Research interests:

- 1. Lubrication and Contact Fatigue
- 2. Theories and Methods for Contact and Interfacial Mechanics.
- 3. Dynamics of Transmission Systems
- 4. Machine Learning and Applications

Education experience:

1. 2016.09 – 2019.07 Sichuan University	Mechanical Design and Theory	Ph.D
2. 2014.09 – 2016.07 Sichuan University	Mechanical Design and Theory	Master

3. 2010.09 – 2014.07 Sichuan University Major in Safety engineering Bachelor

Represent publications:

- Liu C, Cao W, Song X, et al. A semi-analytical method of three-dimensional dual-phaselagging heat conduction model [J]. International Journal of Heat and Mass Transfer, 2024, 218: 124720. (Corresponding author)
- 2. Cao W, Pu W, Wang J, et al. Study of dynamics in lubricated spiral bevel gears under different contact paths [J], Friction, 2022, 10(2): 247-267.
- 3. **Cao W**, Ren S, Pu W, et al. Microstress cycle and contact fatigue of spiral bevel gears by rolling-sliding of asperity contact [J]. Friction, 2020, 8(6): 183-1101.
- Wang D, Wu Y, Wang J, Cao W. Post-buckling path and free vibration of a symmetric laminated plate vertically coupled with fluid under in-plane load [J]. Composite Structures, 2021(3):114433. (Corresponding author)
- Cao W, Pu W, Wang J, et al. Effect of contact path on the mixed lubrication performance, friction and contact fatigue in spiral bevel gears [J]. Tribology International, 2018, 123:359-371.
- 6. **Cao W**, Wang J, Pu W, et al. Tribo-dynamic model and fatigue life analysis of spiral bevel gears [J]. European Journal of Mechanics A/Solids, 2019, 74, 124-138.

Biography:

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.

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.

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.

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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

Education experience:

1. 2000.9-2004.6 B.S., Mechanical Design, Manufacturing and Automation, School of Mechanical Engineering, Hebei University of Engineering

2. 2005.9-2008.6 M.S., Mechanical Engineering, School of Engineering Machinery, Chang'an University

3. 2008.9-2011.12 Ph.D., Mechanical Engineering, School of Engineering Machinery, Chang'an University

4. 2012.11-2015.8 Postdoctoral Research Station, Chang'an University

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))

3.Ma Dengcheng, Li Xuan, Li Zong, et al. Transactions of the CSAE,2016,32(15):104-108.) (Chinese Area A), ("World Academic Influence Q1 Journal" (WAJCI-Q1 Journal))

4.Ma Dengcheng. Lan Fen. Multi-layer low-temperature heating method of asphalt pavement in

hot in-place recycling[J]. Journal of Central South University, 2020, 27(12): 3793-3806. (T1

level of high-quality scientific and technological journals in China)

5.MA Dengcheng, GUI Xue, LI Xuan.Simulation analysis of the significance and interaction of influencing factors on mixing uniformity of double drum recycling mixing plant[J].Journal of Southeast University(English Edition),2022,38(02):158-165

Biography:

Ma Dengcheng, male, Ph.D., Postdoctor, associate professor, doctoral supervisor and master's supervisor of international students, professor in charge of discipline construction of Chang'an University. Deputy Director of the National Virtual Simulation Experiment Teaching Center for Construction Machinery, Deputy Director of the Engineering Research Center of the Ministry of Education for Highway Construction and Maintenance Technology and Equipment, Deputy Director of the Highway Equipment Department of the College of Engineering Machinery, Dissertation Evaluation Expert of the Degree Center of the Ministry of Education, Director of the China Highway and Transportation Society, China Journal of Highway and Transport, Journal of Central South University and Journal of Central South University (SCI) Reviewer. He has participated in 2 national projects, presided over more than 20 provincial and ministerial and vertical and horizontal projects, and published more than 40 academic papers as the first author in domestic and foreign journals. Participated in the compilation of 4 textbooks, 2 industry standards, and 27 national patents, including 6 invention patents. Successfully developed the first high-power microwave regeneration mixing plant in China.

Yang Yanpu 杨延璞

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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. Fatigue of metals (high-strength steel, aeronautic Al-alloy, Ti-alloy) and their weldments
- 2. Fracture of advanced materials (alloy, ceramic, composite)
- 3. Residual stress induced by advanced welding or tensile overloading

Education experience

- 1. B.E. Shandong Jiaotong University 2006
- 2. Master Chang'an University 2009
- 3. Ph.D Chang'an University, University of Western Australia 2013

Represent publications

- CG Zhang*, SG Yang, YZ Dong, SY Mu, HC Li, JL Zhang. Fatigue limit prediction of cracked and notched specimens related to grain size, International Journal of Fatigue, 2023, 177: 107905.
- S Luan, CG Zhang*, X Zhang. Effect of residual stress redistribution on fatigue crack growth pertinent to crack closure and applied load, Materials & Design, 2023, 233: 112282.
- WD Lu, CG Zhang*, S Luan. Quantifying effect of overload-induced residual stress behind crack tip on fatigue crack growth, Engineering Fracture Mechanics, 2023, 292: 109593.
- WD Lu, CG Zhang*. Contribution of overload-induced residual stress to fatigue retardation pertinent to notch geometry, Theoretical and Applied Fracture Mechanics, 2023, 127: 104001.
- 5. JL Zhang*, CG Zhang*, SY Mu, S Wang, HC Li. Characterization of mechanical

properties of in-service nickel-based alloy by continuous indentation. Structures, 2023, 48: 1346-1355.

- 6. SG Yang, CG Zhang*. Probabilistic prediction of mode I fracture related to notch geometry and microstructure, Journal of the European Ceramic Society, 2023, 43: 718-726.
- CG Zhang*, S Luan. Real-time measurement of welding residual-stress relaxation based on strain-controlled fatigue test, Fatigue & Fracture of Engineering Materials & Structures, 2022, 45(11): 3199-3209.
- WD Lu, CG Zhang*, QH Yu. Stress intensity-dependent relation between overload plastic zone and fatigue retardation in Al-alloy, Theoretical and Applied Fracture Mechanics, 2022, 121: 103520.
- SG Yang, CG Zhang*. Geometry and microstructure parameters to predict fracture at notches in a polycrystalline material, Journal of the European Ceramic Society, 2022, 42: 5556-5564.
- SG Yang, CG Zhang*. Notch depth and root radius effects on quasi-brittle fracture of materials related to grain size. Ceramics International, 2022, 48: 23706-23712.
- 11. SG Yang, CG Zhang*. Notch size influence on fatigue limit of steels pertinent to grain size. International Journal of Fatigue, 2022, 156: 106642.
- CG Zhang*, WD Lu. Unveiling contribution of overload-induced residual stress to fatigue retardation pertinent to crack closure and stress intensity. Materials Science and Engineering A, 2022, 831: 142268.
- SG Yang, CG Zhang*. Size effect on quasi-brittle fracture pertinent to microstructure and plastic limit. Theoretical and Applied Fracture Mechanics, 2021, 114, 102978.
- SG Yang, CG Zhang*, XC Zhang*. Notch radius effect on fracture toughness of ceramics pertinent to grain size. Journal of the European Ceramic Society, 2020, 40: 4217-4223.
- SG Yang, CG Zhang*, XC Zhang*. Probabilistic relation between stress intensity and fracture toughness in ceramics. Ceramics International, 2020, 46: 20558-20564.
- CG Zhang, SP Batuev, PA Radchenko, AV Radchenko*. Modelling of fracture of spatial concrete structures under impulse loads. Mechanics of Solids, 2019, 54(6): 854-860.
- 17. CG Zhang*, RW Liu, QK Liu, CP Ren. Effect of stop hole-induced material removal on

fatigue properties of cracked DT4C steel. Materiali in Tehnologije, 2019, 53(4): 457-465.

- CG Zhang*, SG Yang. Probabilistic prediction of strength and fracture toughness scatters for ceramics using normal distribution. Materials, 2019, 12: 727.
- 19. **CG Zhang**, X Hu, T Sercombe, QB Li, ZM Wu, PM Lu. Prediction of ceramic fracture with normal distribution pertinent to grain size. Acta Materialia, 2018, 145: 41-48.
- 20. **CG Zhang***, BB Lei, RW Liu, FF Huo. Trends in fatigue crack growth for the 2024 Al-alloy after a single tensile overload. Materiali in Tehnologije, 2018, 52 (6): 703-710.
- 21. CG Zhang*, WZ Song, QT Wang, W Liu. Influence of pre-stress magnitude on fatigue crack growth behavior of Al-alloy. Materials, 2018, 11: 1267.
- CG Zhang, X Hu, ZM Wu, QB Li. Influence of grain size on granite strength and toughness with reliability specified by normal distribution. Theoretical and Applied Fracture Mechanics. 2018, 96: 534-544.
- CP Ren, QQ Wu, CG Zhang*, SZ Zhang. A normal distribution-based methodology for analysis of fatal accidents in land hazardous material transportation. International Journal of Environmental Research and Public Health. 2018, 15: 1437.
- 24. CG Zhang*, CP Ren, BB Lei, X Hu, PM Lu. Effect of post-weld heat-treatment on the fatigue and fracture mechanisms of weld-repaired Bisplate80 with or without a buffer layer. Journal of Materials Engineering and Performance, 2017, 26: 2742-2753.
- CG Zhang*, JZ Hui, PM Lu, X Hu, J Liang. Effects of heterogeneity and load amplitude on fatigue rate prediction of a welded joint. Advances in Mechanical Engineering, 2016, 8: 1-8.
- CG Zhang*, PM Lu, X Hu. Residual stress and softening in welded high-strength low-alloy steel with a buffering layer. Journal of Materials Processing Technology, 2014, 214: 229-237.
- CG Zhang^{*}, PM Lu, X Hu, XD Song. Residual stress-induced deformation and fatigue crack growth in weld-repaired high-strength low-alloy steel with soft buffer layer. Materials Science and Engineering A, 2013, 564: 147-157.
- 28. CG Zhang*, X Hu, PM Lu, GP Zhang. Tensile overload-induced plastic deformation and fatigue behavior in weld-repaired high-strength low-alloy steel. Journal of Materials

Processing Technology, 2013, 213: 2005-2014.

- CG Zhang*, X Hu, PM Lu. Fatigue and hardness effects of a thin buffer layer on the heat affected zone of a weld repaired Bisplate80. Journal of Materials Processing Technology, 2012, 212: 393-401.
- CG Zhang, XD Song, PM Lu*, X Hu. Effect of microstructure on mechanical properties in weld-repaired high strength low alloy steel. Materials & Design, 2012, 36: 233-242.
- CG Zhang, JZ Yang, X Hu, PM Lu*, MM Zhao. Microstructure characteristics and fatigue properties of welded HSLA with and without buffer layer. Materials Science and Engineering A, 2012, 546: 169-179.
- CG Zhang*, PM Lu, X Hu, XD Song. Effect of buffer layer and notch location on fatigue behavior in welded high-strength low-alloy. Journal of Materials Processing Technology, 2012, 212: 2091-2101.
- CGZhang, S van der Vyer, X Hu, PM Lu. Fatigue crack growth behaviour in weld-repaired high strength low alloy steel. Engineering Fracture Mechanics, 2011, 78: 1862-1875.
- 34. DT Li*, CG Zhang, PM Lu*. Fatigue property and improvement of a rounded welding region between the diaphragm plate and closed rib of an orthotropic steel bridge deck. Metals, 2020, 10: 161.
- AV Radchenko, PA Radchenko, SP Batuev, CG Zhang. Implementation of Johnson-Cook model in EFES program software. AIP Conference Proceedings, 2018, 2027: 030178
- CG Zhang*, SG Yang, S Luan, JZ Hui, W Liu, CP Ren. Positive effect of indentation on fatigue crack growth of mild steel. Journal of Physics: Conference Series, 2018, 1074: 012037.
- 37. CG Zhang*, PM Lu, JH Li. Effect of buffer layer thickness on fatigue and residual stress of welded high-strength low-alloy. Advanced Materials Research, 2013, 820: 110-113.
- CG Zhang, S van der Vyer, X Hu. Fatigue behaviour of weld-repaired high strength low alloy steel. Advanced Materials Research, 2011, 275: 39-42.

Biography

Chunguo Zhang received a joint PhD education in mechanical engineering at Chang'an University in China and at University of Western Australia in Auatralia. His research advances

the contemporary understanding of fatigue and fracture with special interests in fatigue life prediction, prolongation and failure mechanism of advaned weldments, and in fracture-strength prediction of advanced materials by considering the inevitable scatter. In 2015, he founded the Fatigue & Fracture Group, which focuses on the collaboration with faculty and students that pursues sponsored and other research projects. His peer reviewed journal papers have been published in widely read journals including Acta Mateialia, International Journal of Fatigue, and Journal of the European Ceramic Society. He holds multiple patents on machanical, material and mechanics innovations.

Zhao Yong

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Research interests:

1.Mechatronics integration

- 2. Visual inspection
- 3.Hybrid engineering machinery

Education experience:

- 1.1995-1999 Qingdao university of science and technology bachelor
- 2. 2001-2009 Northwestern Polytechnical University PhD
- 3. 2009- Chang'an university

Represent publications:

- 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

Biography:

Zhao Yong (1976-), male, postdoctoral, associate professor. Received a Master's degree in Materials Science from Northwestern Polytechnical University in April 2004, and a PhD in Mechanical Engineering from Northwestern Polytechnical University in May 2009; From September 2010 to November 2013, Shantui Engineering Machinery Co., Ltd. postdoctoral workstation engaged in postdoctoral research on "Research on Performance Parameters and Control Strategies of Hybrid Track Tractors". Since October 2014, he has been a visiting scholar at the Department of Mechanical Engineering at Texas A&M University. Since June 2009, I have been teaching at Chang'an University, mainly focusing on visual inspection and research on hybrid power systems. Led 4 provincial and ministerial level projects with a funding of 750000 yuan, 2 horizontal projects with a total funding of 270000 yuan, applied for 2 invention patents.

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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.

4. Xu Y B, Cai Z Y, Cai X Y, et al. An enhanced multipoint optimal minimum entropy deconvolution approach for bearing fault detection of spur gearbox[J]. Journal of Mechanical Science and Technology, 2019, 33(6): 2573-2586.

5. Lou G, Cai Z. Improved hybrid immune clonal selection genetic algorithm and its application in hybrid shop scheduling[J]. Cluster Computing-the Journal of Networks Software Tools and Applications, 2019, 22(2): S3419-S3429.

6. Xu Y, Cai Z, Ding K. An enhanced bearing fault diagnosis method based on tvf-emd and a high-

order energy operator[J]. Measurement Science and Technology, 2018, 29(9).

7. Lou G, Cai Z. Carbon nanomaterial manufacturing system and automatic synthesis equipment and its control device and control methods[J]. Journal of Chemistry, 2020, 2020.

8. Luan F, Cai Z, Wu S, et al. Improved whale algorithm for solving the flexible job shop scheduling problem[J]. Mathematics, 2019, 7(5).

9. Lou G, Cai Z, Liu Q, et al. Research on the hybrid algorithm based on differential evolution and genetic algorithm for mixed model assembly scheduling[C]. International Conference on Computer Systems, Electronics and Control (ICCSEC), 2017: 1221-1224.

10. Luan F, Cai Z, Wu S, et al. Optimizing the low-carbon flexible job shop scheduling problem with discrete whale optimization algorithm[J]. Mathematics, 2019, 7(8).

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. 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.

3. Investigation and Prediction of Nano-Silver Line Quality upon Various Process Parameters in Inkjet Printing Process Based on an Experimental Method, 3D Printing and Additive Manufacturing, 2023.

4. Musculoskeletal Multibody Dynamics Investigation of Posterior-stabilized Total Knee Prosthesis, Journal of Biomedical Engineering, 2022.

5. Computational Wear Prediction for Impact of Kinematics Boundary Conditions on Wear of Total Knee Replacement Using Two Cross-Shear Models, Journal of Tribology, 2019.

Biography:

Dr. Guo Lei, Associate Professor and Master's Supervisor, also serves as an International Doctoral Supervisor. He graduated with a bachelor's degree in Vehicle Engineering from the School of Mechanical Engineering at Chongqing University. In 2009, he was awarded a full scholarship by the NSF (National Science Foundation) of the United States to pursue his doctoral

degree at the University of Toledo. He has previously worked as a Process Engineer at Tenneco Automotive in the USA, a Process Engineer at Medtronic Medical Devices, USA, and a researcher at the PMMC Ultra Precision Micro-Nano Manufacturing Center in Ohio. In 2016, he was selected for the Overseas Outstanding Doctor Recruitment Program and the Young Academic Backbone Talent Program of Chang'an University. His main research focuses on ultra-precision machining and intelligent manufacturing technologies. In recent years, he has led projects funded by the National Natural Science Foundation of China, the Ministry of Science and Technology's Strategic Development Project, the Natural Science Foundation of Shanxi Province, the China Postdoctoral Science Foundation, and national key laboratory projects, as well as research projects of central universities. He has also been a team member in six other vertical projects and corporate commissioned horizontal topics, published over 30 high-level academic papers, and holds more than 10 national invention patents and software copyrights.

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Research interests:

1. Low-carbon manufacturing

2. Additive manufacturing

3. Smart manufacturing

Education experience:

1. 2004-2008, Industrial Engineering, School of Mechanical and Energy Engineering, Zhejiang University.

2. 2008-2014, Mechanical Manufacturing and Automation, School of Mechanical Engineering, Zhejiang University.

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.

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.
 Zhiqiang Yan, Jizhuang Hui, Jingxiang Lv, Huisingh Donald, et al. A hybrid mechanism-based and data-driven approach to forecast energy consumption of fused deposition modelling, Journal of Cleaner Production, 2023, 413: 137500.

5. Zhiqiang Yan, Jian Huang, **Jingxiang Lv***, Jizhuang Hui, Yongsheng Liu, Hao Zhang, Enhuai Yin, Qingtao Liu, A New Method of Predicting the Energy Consumption of Additive Manufacturing considering the Component Working State, Sustainability, 2022, 14(7): 3757. *Biography:*

Jingxiang Lv, born in March 1986, was born in Tianzhen, Shaanxi. Teacher and Associate

Professor of the Department of Mechanical Manufacturing, School of Engineering Machinery, Chang'an University. His research direction is low-carbon manufacturing and additive manufacturing.

In 2004, he was admitted to the School of Mechanical and Energy Engineering of Zhejiang University with a bachelor's degree in Industrial Engineering. In 2008, he began to study for a Ph.D. In 2014, he obtained a Ph.D. degree in Mechanical Manufacturing and Automation from Zhejiang University. After that, he did postdoctoral research at School of Mechatronics in Northwestern Polytechnical University from 2015-2017, and then worked at Chang'an University in 2018 until now. He visited Melardalen University in Sweden in 2017 and did postdoctoral research at Cardiff University in the UK in 2018-2019. He was the principle investigator for 1 Project from Natural Science Foundation of China, 1 Project from Natural Science Basic Research Program of Shaanxi, and 1 Project from the Fundamental Research Funds for the Central Universities.

He has published more than 30 papers in Journal of cleaner production, International Journal of Production Research, Advances in Applied Ceramics, International Journal of Advanced Manufacturing Technology, Computer Integrated Manufacturing System and other magazines. He obtained 5 patents, and 4 items of software copyright.

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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)

3. Su Jinzhan, Fang Zongde. Manufacturing Process for a Circular-arc Curvilinear Cylindrical Gears with Predisigned Fourth Order Transmission Error. International Conference on Engineering Design and Optimization, 2010: 623-627. (EI)

4. Su Jinzhan, Fang Zongde. Advanced tooth surface modification for spiral bevel gears.

Applied Mechanics and Materials, 2011, 86: 148-151. (EI)

Biography:

Su Jinjin, male, born in 1982, Ph.D., associate professor, master's supervisor. From 2005 to 2011, he studied for a doctorate degree in mechanical engineering at Northwestern Polytechnical University under the supervision of Professor Fang Zongde, a domestic gear expert. In 2011, he received a doctorate degree in engineering and joined the postdoctoral research station of aeronautics and astronautics science and technology of Northwestern Polytechnical University. Since June 2013, he has been engaged in teaching and scientific research in the School of

Engineering and Mechanical Engineering of Chang'an University. From November 2018 to November 2019, he was a visiting scholar at the Rochester Institute of Technology in the United States, where the foreign co-tutor was Prof. Fuentes, an international gear expert, and visited the headquarters of Gleason in the United States, and had in-depth exchanges with Dr. Stadtfeld, Chief Technical Officer of Gleason Bevel Gears.