**Research grants**

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* PI of “Physical Modeling of differentiable fluids for multi-material coupling scenarios”, funded by Ministry of Science and Technology of China, 01/2022-12/2023, € 52,586
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* Co-PI of “Research on intelligent Simulation modeling for Complex Multiphase Flow Environment”, funded by Ministry of Science and Technology of China, 01/2021-12/2022, € 39,440.
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* Researcher of “ Intelligent and precise control and 3D visualization project for paste filling in southeast ore body of Chambishi Copper Mine”, supported by NFC Africa Mining PLC, 06/2019 - 06/2021, € 407,940.
* Co-PI of “ Efficient data driven fluid simulation for multi-element scenarios ” funded by by the Natural Science Foundation of China (NSFC), Grant No.61873299, 01/2019 - 12/2022, €100,707.
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* Co-I of “ Chinalco Ruimin Intelligent Manufacturing New Model - Intelligent decision support system ” supported by Aluminium Corporation of China, 05/2018 - 05/2020, € 260,574.
* Researcher of “Multimodal data interaction intention understanding based on cloud client synergy”, funded by National Key Research and Development Program of China, Grant No.2016YFB1001404, 08/2016 - 09/2020, € 5.05M.
* Researcher of “Acquisition and processing technology for high throughput material experimental big data”, funded by National Key Research and Development Program of China, Grant No.2016YFB0700502, 06/2016 - 07/2020, € 3.28M.
* Researcher of “ Non-homogeneous fluid oriented interactive animation ” funded by NSFC, Grant No.61572075, 01/2016 - 12/2019, €101,664.

**Peer-reviewed journal articles**

1. Tiancheng Wang, Yanrui Xu, Ruolan Li, Haoping Wang, Yuege Xiong and **Xiaokun Wang\***. Simulating Hyperelastic Materials with Anisotropic Stiffness Models in a Particle-Based Framework. Computers & Graphics, 2023, to be published. (SCI)
2. Xiangyang Zhou, Jing Zhou, Haokai Zeng, **Xiaokun Wang**, Sinuo Liu and Xiaojuan Ban. Efficient and High Precision Target-driven Fluid Simulation based on Spatial Geometry Features. Computer Animation and Virtual Worlds, 2023, to be published. (SCI)
3. Bing Han, Chao Yao,**Xiaokun Wang**, Xiaojuan Ban. HandDGCL: Two-hand 3D reconstruction based Disturbing Graph Contrastive Learning. Computer Animation and Virtual Worlds, 2023, to be published. (SCI)
4. **Xiaokun Wang**, Tiancheng Wang, Jiamin Wang, Yanrui Xu, Xiaojuan Ban, Houbin Huang, Zhihong Zhu, Jian Chang and Jian Jun Zhang. Implicit smoothed particle hydrodynamics model for simulating incompressible fluid- elastic coupling. Computer Animation and Virtual Worlds, 2023: e2146. (SCI)
5. Yanrui Xu, Yuanmu Xu, Yin Dou, Xiaojuan Ban, **Xiaokun Wang\***, Jian Chang and Jian Jun Zhang. Anisotropic Screen Space Rendering for Particle-based Fluid Simulation. Computers & Graphics, 2023, 110: 118-124. (SCI)
6. Yuanyuan Xie, Yu Guo, Zhenqiang Mi, **Xiaokun Wang**, Yang Yang, Mohammad S. Obaidat. Indoor Visual Re- localization for Long-term Autonomous Robots Based on Object-level Features and Semantic Relationships. IEEE Robotics and Automation Letters, 2023, 8(2): 840-847.
7. Yanrui Xu, Chongming Song, **Xiaokun Wang\***, Xiaojuan Ban, Jiamin Wang, Yalan Zhang and Jian Chang. Spatial adaptivity with boundary refinement for smoothed particle hydrodynamics fluid simulation. Computer Animation and Virtual Worlds, 2023: e2136. (SCI)
8. Yanrui Xu, **Xiaokun Wang**\*, Xiaojuan Ban, Jiamin Wang, Chongming Song and Yong Wang. Volume Flux free SPH Approach for Multiphase Fluids, Journal of Computer-Aided Design & Computer Graphics (CCF CAD/CG 2021+2022 Conference Best paper award), 2022, 34(11): 1637-1646. (EI)
9. Sinuo Liu#, **Xiaokun Wang**# (co-first author), Xiaojuan Ban\*, Yanrui Xu; Jing Zhou; Jiri Kosinka; Alexandru C. Telea; Turbulent Details Simulation for SPH Fluids via Vorticity Refinement, Computer Graphics Forum, 2021, 40(1): 54-67. (SCI)
10. **Xiaokun Wang**#, Sinuo Liu#, Xiaojuan Ban\*, Yanrui Xu, Jing Zhou, Jirí Kosinka. Robust turbulence simulation for particle-based fluids using the Rankine vortex model, The Visual Computer (CGI2020 Best paper award), 2020, 36(10-12): 2285-2298. (SCI)
11. **Xiaokun Wang**, Yanrui Xu, et. al. A Unified Multiple-Phase Fluids Framework using Asymmetric Surface Extraction and Modified Density Model. Symmetry, 2019, 11(6): 745. (SCI)
12. **Xiaokun Wang**, Yanrui Xu, Xiaojuan Ban\*, Pengfei Ye. Fast and Stable Surface Feature Simulation for Particle- Based Fluids. Journal of Beijing Institute of Technology, 2019, 28(1): 57-66. (EI)
13. Xiaojuan Ban, **Xiaokun Wang**\*, et. al. Adaptively Stepped SPH for Fluid Animation Based on Asynchronous Time Integration. Neural Computing and Applications, 2018, 29(1), 33-42. (SCI)
14. **Xiaokun Wang**, XiaoJuan Ban, et. al. Small-Scale Surface Details Simulation using Divergence-free SPH. Journal of Visual Languages and Computing, 2018, 48(10):91-100. (SCI)
15. **Xiaokun Wang**, Xiaojuan Ban, Runzi He, Xing Liu. Fluid-Solid Boundary Handling using Pairwise Interaction Model for Non-Newtonian Fluid. Symmetry, 2018, 10(4), 94. (SCI)
16. **Xiaokun Wang**, Xiaojuan Ban\*, et. al. Surface tension model based on implicit incompressible SPH for fluid Simulation. Journal of Computer Science and Technology, 2017, 32(6):1186-1197. (SCI)
17. **Xiaokun Wang**, Xiaojuan Ban\*, Yalan Zhang, Xu Liu. Rigid Body Sampling and Individual Time-Stepping for Rigid-Fluid Coupling of SPH Fluids. Scientific Programming, 2017, 4:1-11. (SCI)
18. **XiaoKun Wang**, XiaoJuan Ban\*, et. al. Efficient Extracting Surfaces Approach Employing Anisotropic Kernels for SPH Fluids. Journal of Visualization, 2015, 19(2): 301-317. (SCI)
19. Yalan Zhang, Xiaojuan Ban, **Xiaokun Wang**, et al. A Symmetry Particle Method towards Implicit Non‐Newtonian Fluids. Symmetry, 2017, 9(2):26. (SCI)
20. **XiaoKun Wang**, XiaoJuan Ban\*, et. al. Effective reconstructing surfaces algorithm of anisotropic kernels orienting SPH fluids. Journal of Computer-Aided Design and Computer Graphics, 2016, 28(9): 1497-1505.
21. **Xiaokun Wang**, Xiaojuan Ban, Jinbiao Guan. Rigid Body Sampling for Rigid-fluid Coupling in SPH. Journal of Computational Information Systems, 2014, 10 (22): 9743- 9750. (EI)TODO

# Conference proceedings

1. Sinuo Liu, Xiaojuan Ban, Sheng Li, Haokai Zeng, **Xiaokun Wang** Yanrui Xu, Fei Zhu, Guoping Wang. FluidPlaying: Efficient Adaptive Simulation for Highly Dynamic Fluid. IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW), 2023: 831-832.
2. Chongming Song, Yanrui Xu, **Xiaokun Wang\***, Jiamin Wang, Houbin Huang, Zhihong Zhu, Xiaojuan Ban. “ Silicone Oil-Water Interaction and Emulsification Visual Simulation for Intraocular Silicone Oil Tamponade ” , 2021 IEEE International Conference on Bioinformatics and Biomedicine (BIBM) in Houston, TX, USA, in October, 2021.
3. Zihao Liu, Yanrui Xu, **Xiaokun Wang**\*, Xiaojuan Ban, Zhiyu Zheng. Simulation and visualization of solid-liquid phase transition and interactive using particle-based method. IEEE International Conference on Communications, Computing, Cybersecurity, and Informatics (CCCI), 2021: 1-5.
4. **Xiaokun Wang#,** Sinuo Liu#, Xiaojuan Ban\*, et al. Recovering Turbulence Details using Velocity Correction for SPH Fluids, SIGGRAPH Asia 2019, Technical Briefs, Brisbane, Australia, 2019: 1-4.
5. **XiaoKun Wang**, Sinuo Liu, Xiaojuan Ban, Yanrui Xu, Jing Zhou, Cong Wang. Convergent turbulence refinement toward irrotational vortex. ACM SIGGRAPH, 2019, Poster, No.80.
6. Sinuo Liu#, **XiaoKun Wang**#, et.al. Viscosity-based Vorticity Correction for Turbulent SPH Fluids. IEEE Conference on Virtual Reality and 3D User Interfaces (IEEE VR), 2019.
7. Zhishuai Han, Xiaojuan Ban, **Xiaokun Wang**\*, Jianyu Wu. MIPOSE: a micro-intelligent platform for dynamic human pose recognition. CHI Conference on Human Factors in Computing Systems, 2019: 60-65.
8. **Xiaokun Wang**, Xiaojuan Ban, et. al. Anisotropic Surface Reconstruction for Multiphase Fluids. IEEE International Conference on Cyberworlds (CW), 2017, 118-125.
9. **Xiaokun Wang**, Xiaojuan Ban, Xu Liu, Yalan Zhang. Rigid body sampling and individual time-stepping for rigid- fluid coupling of particle based fluids. International Conference on Cooperative Design, Visualization and Engineering, 2016, 210-218.
10. Ruixiang Li, **Xiaokun Wang**\*. Individual time-stepping for rigid-fluid coupling of particle based fluids. IEEE International Conference on Cyberworlds (CW), 2016, 235-238.
11. Yalan Zhang, Xiaojuan Ban, **Xiaokun Wang**, Xing Liu. A Density-Correction Method for Particle-Based Non- Newtonian Fluid. International Conference on Cooperative Design, Visualization and Engineering, 2016, 219-226.TODO
12. Yalan Zhang, Xiaojuan Ban, **Xiaokun Wang**, Xing Liu. The Non-Newtonian Fluid Simulation Based on Predictive- Corrective Incompressible SPH. International Conference on Virtual Reality and Visualization (ICVRV), 2016.
13. Liangliang He, Xiaojuan Ban, Xu Liu, **Xiaokun Wang**. Individual Time Stepping for SPH Fluids. Eurographics, 2015, short paper.

# Professional service and organization

From 2015 to 2016, I assisted my PhD supervisor Prof. Ban (who is the Committee Chair) in organising and setting up the Smart Medical Professional Committee of Chinese Association for Artificial Intelligence and took the administrative role on registration and communication.

From May to July in 2016, I assisted Prof. Ban who was co-program chair and track chair in organising the 4th IEEE International Conference on Cloud Computing and Intelligence Systems (CCIS 2016). I was responsible for coordinating and assigning the review tasks of manuscripts for Intelligent Technology Track. I also assisted Prof. Ban in organising seminars on “blood flow simulation” and “eye 3D reconstruction” and a networking programme with the Air Force General Hospital and Peking University Third hospital.

Since working at BU in 2021, Prof. Chang Jian and I, as initiators and chairs, have organized the 4th and 5th AniNex workshops in collaboration with CASA. Additionally, as guest editors, we have organized special issues in Computer & Graphics, Computer Animation and Virtual Worlds, and The Visual Computer, collecting a total of 15 articles.

In addition, I served as the Program Committee for several international conferences (CGI, CASA, CVM, CAD/Graphics, etc), conference program chairs (CCCI2021, CASA AniNex workshop 2022/2023), reviewer for many journals (C&G, TVC, CAVW, NCA, CGF, GM, IEEE TITS, etc) and conferences (SIGGRAPH, CGI, CAD/CG, etc).

# Participation in industrial innovation

I have participated in 6 projects in cooperation with industrial enterprises, 5 of which were based on my previous research development in computer graphics and 3D visualization. For instance, in the project of “ Changchun bridge health information monitoring management system ” , we performed 3D refinement modelling of bridges with innovative reconstructed approach, and associated sensor detection information with specific modules of bridge models, to present the health status of Bridges. Moreover, in the project of “Nanning City Traffic Evaluation and Prediction System”, we made a scientific evaluation of the traffic conditions on urban roads, forecasted the traffic conditions within a certain period, and designed virtual road to improve the regional traffic condition, using big data analysis and 3D visualization techniques. We won “ First Prize of Guangxi Excellent City Planning and Design” and “ Third Prize of China Excellent Urban and Rural Planning and Design” through this project, which could provide support for urban traffic diversion scheme and road design. Furthermore, we will simulate paste flow in the pipeline, 3D visualization of pipeline transport and stope filling using our latest research in the project “Intelligent and precise control and 3D visualization project for paste filling in southeast ore body of Chambishi Copper Mine ” . Through this project, we have been awarded “ Second Prize for Technological Advancement ” by the China Electronics Society and the “First Prize for Technological Advancement” by the China Gold Association, providing technological support for the informatization and intelligentization of mining.

* Researcher of “ Intelligent and precise control and 3D visualization project for paste filling in southeast ore body of Chambishi Copper Mine ” , supported by NFC Africa Mining PLC, 06/2019 - 06/2021, € 407,940. This project will improve the stability and quality of filling operation, reduce cost for the enterprise through real-time sensing and 3D visualization of pipeline transportation and filling process.
* Co-I of “ Chinalco Ruimin Intelligent Manufacturing New Model - Intelligent decision support system ” supported by Aluminum Corporation of China, 05/2018 - 05/2020, € 260,574. (phase-I project) and subsequent projects is expected to bring in over € 12.6M in earnings over the next five years.
* Contributed to the prediction model construction (RA) of “Nanning City Traffic Evaluation and Prediction System” of Traffic Police Detachment, Nanning Public Security Bureau, 2016, € 265,409, this improves the level of urban traffic management.
* “ Changchun bridge health information monitoring management system ” , Changchun municipal construction committee, 2016, € 117,299, This project helps relevant departments grasp the real time information of the bridge which can also look in 3D view for more details.

Contributed to the code development (RA) in three cross-sectoral projects which were collaborated with different companies to promote knowledge transfer, “ Enterprise Group Intelligent Decision Support System based on Big Data”, Qingdao Special Iron and Steel Co., LTD. 7/2016-8/2016, € 252,168. This project helps enterprises save more than € 1.2M each year through data mining and analysis.