

ZHUOYUAN YANG

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EDUCATION

- Ph.D. Candidate in Aerospace Engineering**, Embry-Riddle Aeronautical University 08/2026 expected
Major: *Aerospace Engineering*. (Ranked 25th in the U.S.)
Dissertation: *Direct Ink Writing of Functional Composites*
Dissertation Advisor: *Dr. Yizhou Jiang*¹
- M.S. in Mechanical Engineering**, University of Southern California 12/2022
Major: *Mechanical Engineering*.
Independent research on 3D printing conducted in Prof. Yong Chen's Laboratory²
- B.E. in Mechanical and Electrical Engineering**, Jiangsu University 06/2020
Major: *Mechanical and Electrical Engineering*.

PROFESSIONAL EXPERIENCE

- 01/2023-Present: **Research Assistant**, Department of Aerospace Engineering, Embry-Riddle Aeronautical University, Daytona Beach, FL, US.
- 01/2022-12/2022: **Research Assistant**, Center of Advanced Manufacturing (CAM)³, University of Southern California, Los Angeles, CA, US.
- 06/2019-09/2019: **Visiting Student**, University of California, Berkeley, Berkeley, CA, US
- 06/2019-06/2020: **Team leader** (50+ team members), DJI RoboMaster Robotics competition⁴, Zhenjiang, Jiangsu, China

RESEARCH INTERESTS

- **Innovative Additive Manufacturing Processes:** Developing advanced 3D printing techniques, such as coaxial direct ink writing and vat photopolymerization, for multifunctional composites and complex geometries.
- **Additively Manufactured Composites Materials:** Designing continuous fiber-reinforced composites with tailored mechanical and thermal properties for aerospace and high-performance applications.
- **Multifunctional Materials:** Engineering materials with programmable properties, including flame-retardant interfaces, energy storage capabilities, and bio-inspired anisotropic surfaces.
- **Granular Materials:** Exploring vibration-assisted 3D printing (e.g., in-space infrastructure) and granular material processing techniques for adaptive structural applications.

PUBLICATIONS

(Names listed in the order of authorship - a total of 16 published journal and conference papers. My Google Scholar profile is at <https://scholar.google.com/citations?user=WblvcXkAAAAJ&hl=zh-CN> with the citation of 144, the h-index of 6, and the i10-index of 6 until April 2026).

¹ <https://faculty.erau.edu/Yizhou.Jiang>

² <https://viterbi-web.usc.edu/~yongchen/>

³ <https://sites.usc.edu/cam/>

⁴ <https://www.robomaster.com/en-US>

Refereed Journal Articles Published or Accepted for Publication

(*Corresponding author, †Equal contributing author)

- J1. Bingbing Hu, Meng Cheng*, **Zhuoyuan Yang**, Kehao Tang, Mingfan Zhao, Zheng Lu, Yizhou Jiang*, Chee Kai Chua*, “Multi-material 3D printing of self-powered sensors based on ionic thermoelectric hydrogels.” *Virtual and Physical Prototyping*, 2026 (IF: 9.6)
- J2. Kehao Tang†,1, **Zhuoyuan Yang**†, Meng Cheng*, Qi Lyu, Bingbing Hu, Mingfan Zhao, Yizhou Jiang*, “3D-printed multi-stage helical continuous carbon fiber based supercapacitors with enhanced mechanical performance.” *Journal of Energy Storage*, 2026 (IF: 10)
- J3. Zefu Ren†, **Zhuoyuan Yang**†, Rishikesh Srinivasaraghavan Govindarajan, Kehao Tang, Sida Xu, Meng Cheng*, Yizhou Jiang*, Daewon Kim*, “Two-Photon Polymerization of Bioinspired Microstructure with Tunable Wettability Controlled by Dielectric Elastomer Actuator.” *ACS Applied Materials & Interfaces*, 2025 (IF: 8.5)
- J4. Meng Cheng, Kehao Tang, **Zhuoyuan Yang**, Mingfan Zhao, Wei Duan, Xin Lin, Kunpeng Zhu*, Haolin Tang*, Yizhou Jiang*, “Regulating Lithium Deposition via 3D Printed Current Collectors with Dual-Scale Roughness.” *ACS Applied Materials & Interfaces*, 2025 (IF: 8.5)
- J5. Yuxuan Wu, **Zhuoyuan Yang**, Foram Madiyar, Yizhou Jiang*, Sirish Namilae*, “Hydroxyapatite Functionalized Natural Fiber-Reinforced Composites: Interfacial Modification and Additive Manufacturing.” *Polymer Composites*, 2025 (IF: 4.7)
- J6. **Zhuoyuan Yang**, Kehao Tang, Wenjun Song, Zefu Ren, Yuxuan Wu, Daewon Kim, Sirish Namilae, Yifei Yuan*, Meng Cheng*, Yizhou Jiang*, “Coaxial Direct Writing of Ultra-strong Supercapacitors with Braided Continuous Carbon Fiber Based Electrodes.” *Chemical Engineering Journal*, 2024 (IF: 13.5)
- J7. **Zhuoyuan Yang**, Evan Medora, Zefu Ren, Meng Cheng*, Sirish Namilae*, Yizhou Jiang*, “Coaxial Direct Ink Writing of ZnO Functionalized Continuous Carbon Fiber-reinforced Thermosetting Composites.” *Composites Science and Technology*, 2024 (IF: 9.8)
- J8. Zefu Ren†, **Zhuoyuan Yang**†, Rishikesh Srinivasaraghavan Govindarajan, Foram Madiyar, Meng Cheng*, Daewon Kim*, Yizhou Jiang*, “Two-Photon Polymerization of Butterfly Wing Scale Inspired Surfaces with Anisotropic Wettability.” *ACS Applied Materials & Interfaces*, 2024 (IF: 8.5)
- J9. Yang Xu, Huachao Mao, Cenyi Liu, Zhengyu Du, Weijia Yan, **Zhuoyuan Yang**, Jouni Partanen, Yong Chen*, “Hopping Light Vat Photopolymerization for Multiscale Fabrication.” *Small*, 2023 (IF: 12.5)

Manuscripts Under Review

- J1. **Zhuoyuan Yang**, Zefu Ren, Yuaxuan Wu, Chengkai Lai, Daewon Kim, Sirish Namilae, Meng Cheng, Yizhou Jiang*, “Vibrational 3D printing of granular materials toward in-space structures.” *Proceedings of the National Academy of Sciences of the United States of America*, 2025 (submitted)
- J2. **Zhuoyuan Yang**, Sida Xu, Zefu Ren, Daewon Kim, Meng Cheng, Yizhou Jiang*, “Freestanding 3D Printing of Continuous Carbon Fiber Reinforced Thermoset Composites by In Situ Heat Tracing.” *Additive Manufacturing*, 2025 (submitted)

Refereed Conference Proceedings (full paper review)

(*Presenter)

- C1. Kaitlyn Williams, Michael Allen, Cooper Goodnight, Connor Schwartz, Hang Song, Leitao Chen, **Zhuoyuan Yang***, Meng Cheng, Yizhou Jiang, “Investigating Ohmic Heating as a Method of 3D-Printing Freestanding Thermoset Composites.” AIAA SCITECH Advanced Manufacturing and Composite Structure Design, Jan 12-16, 2026
- C2. Sida Xu, Zefu Ren, **Zhuoyuan Yang**, Nicholas Reed, Rishikesh Srinivasaraghavan Govindarajan, Daewon Kim, Yizhou Jiang*, “Flame Retardancy of Additively Manufactured Continuous Carbon Fiber Reinforced ABS Composites with Expandable Graphite Coating”, AIAA SCITECH Topics in Air and Space Structures I, Jan 6-10, 2025

- C3. Hanqing Bi, **Zhuoyuan Yang***, Mengxi Wang, “The Performance of Different Algorithms to Solve Traveling Salesman Problem.” 2021 2nd International Conference on Big Data & Artificial Intelligence & Software Engineering (ICBASE), Sep. 22-24, 2021
- C4. **Zhuoyuan Yang***, “Research on the Application of Rigid-flexible Compound Driven Fruit Picking Robot Design in Realizing Fruit Picking.” Journal of Physics: Conference Series, June 1-3, 2021
- C5. **Zhuoyuan Yang***, “Research on Lane Recognition Algorithm Based on Deep Learning.” 2019 International Conference on Artificial Intelligence and Advanced Manufacturing (AIAM), Oct. 13-16, 2019

PATENTS

Patents Issued

- P1. Guanggui Cheng, Jie Cao, Jianning Ding, **Zhuoyuan Yang**, Zhongqiang Zhang, Yan Zhong, “A Ring-Counting Detection Device for Archery Targets Based on Triboelectricity of Super-Elastic Materials.” (CN Patent NO.202010563489.9)
- P2. Meng Cheng, Kehao Tang, Yizhou Jiang, **Zhuoyuan Yang**, “3D-Printed Multistage Helical-Structure Carbon-Fiber Supercapacitor and Its Fabrication Method.” (China Patent NO. 202411785033.1)
- P3. **Zhuoyuan Yang**, “A type of fan system based on track regulation.” (CN Patent No. 201920999392.5)
- P4. **Zhuoyuan Yang**, “A type of machine tools waste processing device.” (CN Patent No. 201920611769.5)

Patents Applications

- P1. Yizhou Jiang, **Zhuoyuan Yang**, “Freestanding 3D Printing of Continuous Carbon Fiber Reinforced Thermoset Composites by In Situ Heat Tracing.” Nov. 2024 (Applied).
- P2. Yizhou Jiang, **Zhuoyuan Yang**, “Vibrational 3D printing of granular materials.” Jan. 2025 (63/825369) (Applied).
- P3. Yizhou Jiang, **Zhuoyuan Yang**, “Coaxial 3D printing of energy storage devices with braided continuous carbon fiber based electrodes”, Jan. 2025 (Applied).

AWARDS AND HONORS

- 2020: Third Prize in Competition of Robomaster 2019-2020.
- 2020: Best Newcomer Award of Robomaster 2019-2020.
- 2017: Student of All-Round Development of 2016-2017 Academic Year, Jiangsu University.

ACADEMIC SERVICES

Journal Reviewer

- Virtual and Physical Prototyping (2024-Present)
- Journal of Manufacturing Science and Engineering (2023-Present)
- Materials Research Express (2021-Present)
- Advanced Functional Materials (2025-Present)

Students Mentored

- Emily Wetzel (High school summer lab intern, SKY-CARE Internship⁵, 06/2025-08/2025)
- Sida Xu (from Embry-Riddle Aeronautical University, graduate, 08/2024-Present)
- Kaitlyn M. Williams (from Embry-Riddle Aeronautical University, undergraduate, 08/2024-Present)
- Shingkai Lai (from Hong Kong University of Science and Technology, 06/2024-Present, currently a Ph.D. student at Rice University)
- Ashley Lopez (from Embry-Riddle Aeronautical University, undergraduate, 08/2024-12/2024)
- Cindy Nguyen (from Embry-Riddle Aeronautical University, undergraduate, 08/2024-12/2024)

⁵ <https://erau.edu/research/research-in-classroom/aspire/sky-care-internship>

- Giorgio Ladonko (from Embry-Riddle Aeronautical University, undergraduate, 08/2024-11/2024)
- Linn S. Tjornhom (from Duke University, REU programs, undergraduate, 06/2024-08/2024)
- Diaz Diego (from Duke University, REU programs⁶, undergraduate, 06/2023-08/2023)
- Alexander Maschner (from Embry-Riddle Aeronautical University, undergraduate, 01/2023-05/2023)
- Xu Ouyang (from University of Southern California, 5/2022-12/2022, currently a Ph.D. student at the University at Buffalo)
- Wenhao Zhang (from University of Southern California, 10/2022-12/2022, currently a Ph.D. student at Virginia Technology)
- Zhengwei Yu (from University of Southern California, 8/2022-12/2022)
- Zhengyu Du (from University of Southern California, 05/2022-10/2022, currently a Ph.D. student at Virginia Technology)
- Baiyu Zhang (from University of Southern California, 05/2022-10/2022)
- 50+ DJI RoboMaster Robotics competition members (from the University of Jiangsu, 06/2019-06/2020)

⁶ [NSF Research Experiences for Undergraduates](#)