









Junliang “Julian” Tao

PhD, Associate Professor

Curriculum Vitae

September 2023

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Education

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|------------|-------------------|---------------------------------|-----------------|------|
| PhD | Civil Engineering | Case Western Reserve University | Cleveland, US | 2013 |
| MS | Civil Engineering | Tongji University | Shanghai, China | 2009 |
| BS | Civil Engineering | China University of Geosciences | Wuhan, China | 2006 |

Experiences

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| 2018– | Associate Professor | School of Sustainable Engineering and the Built Environment, Arizona State University |
| 2022 | Guest Professor | Institute of Geotechnical Engineering, University of Natural Resources and Life Sciences (BOKU) |
| 2013–2018 | Assistant Professor | Department of Civil Engineering, University of Akron |

Honors and Awards

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| 2020 | The 10th Anniversary Excellent Paper Award, Journal of Rock Mechanics and Geotechnical Engineering |
| 2017 | CAREER Award, National Science Foundation |
| 2017 | Gary W. Johnson Young Civil Engineer of the Year Award, ASCE Akron-Canton Section |
| 2017 | Excellent Paper Award, The 2017 International Conference on Transportation Infrastructure and Materials |
| 2017 | Keynote Speaker, The 2nd Transportation Research Congress, Beijing, China |
| 2016 | Summer Faculty Fellowship, University of Akron |
| 2015 | Highlight paper, IFCEE 2015 |
| 2014 | Biomimicry Research and Innovation Center Research Incentive Grant, University of Akron |
| 2014 | ExCEED 2014 Teaching Fellow, ASCE |
| 2013 | Geo-institute Travel Award, ASCE Geo-congress 2013 |
| 2013 | Roy Harley Prize, Case Western Reserve University |
| 2012 | Highlight paper, Smart Materials and Structures |
| 2012 | USUCGER Travel Award, 1st USUCGER Early Career Geotechnical Conference and NSF CMMI Research and Innovation Conference |
| 2012 | Craig J. Miller Memorial Award, Case Western Reserve University |
| 2011 | SGS-Graduate Student Travel Award, Case Western Reserve University |

Mission Statement

I am leading the research group Bio-inspired Geotechnics (BiG) in the NSF Research Center for Bio-mediated and Bio-inspired Geotechnics at Arizona State University. Our mission is to discover the fundamental mechanisms of various interactions between living things and geological materials, to abstract these mechanisms to engineering design principles, and to translate the design principles to autonomous, efficient, sustainable and intelligent geotechnics. We seek the answers at the boundaries of biology, mechanics and engineering. We achieve the BiG goals and extend the impacts from research, teaching, outreach, entrepreneurship and collaboration. Our Current research topics include: bio-inspired self-burrowing robots, bio-inspired underground sensing and communication, bio-inspired sustainable countermeasures to natural hazards.

Professional Membership

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| Associate Member | American Society of Civil Engineers (ASCE) Geo-Institute |
| Member | International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE) |
| Member | Society for Integrative and Comparative Biology (SICB) |
| Member | Institute of Electrical and Electronics Engineers (IEEE) |
| Member | International Society for Optical Engineering (SPIE) |
| Member | Transportation Research Board (TRB) |

PUBLICATIONS, INTELLECTUAL PROPERTY AND PRESENTATIONS

Summary of Publications and Intellectual Property

| | |
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| Total Publications | 110 |
| Books Co-Edited | 3 |
| Invited Journal Publications | 1 |
| Invited Conference Papers | 3 |
| Refereed Conference Papers | 65 |
| Technical Reports or other papers (non-refereed) | 5 |
| Journal publications from ASU | 19 |
| Journal Publications Prior to ASU (All Published) | 21 |
| Manuscripts Submitted or In Revision from ASU | 6 |
| Patents; Patents pending | 2 |

Summary of Presentations

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| Invited Presentation, External | 32 |
| Invited Presentation, Internal | 2 |
| Peer-reviewed Conference Presentations, including Students | 52 |

Google Scholar Statistics (as of September 15, 2023)

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| h-index | 18 |
| i10-index | 30 |
| total citation | 1309 |

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| Bold Font | Ph.D. Student for whom I am the primary advisor |
| <u>Underline Font</u> | Master’s Student for whom I am the primary advisor |
| # | Undergraduate Student |
| ∞ | Other/Visiting Student |
| × | Postdoctoral Researcher |
| ‡ | High School Student |
| + | Equal Contributions |
| ~ | Presenting Author |

Journal Articles

1. H Bagheri, D Stockwell, B Bethke, NK Okwae, D Aukes, J Tao, and H Marvi*. A Bio-Inspired Helically Driven Self-Burrowing Robot. *Acta Geotechnica* (2023). DOI: 10.1007/s11440-023-01882-9.
2. **Y Zhong**, S Huang[×], and J Tao*. Minimalistic Horizontal Burrowing Robots. *Journal of Geotechnical and Geoenvironmental Engineering* **149**(4) (2023), 02823001. DOI: 10.1061/JGGEFK.GTENG-11468.
3. **X Li**, L van Paassen, and J Tao*. Investigation of Using Mangrove-Inspired Skirt Pile Group as a Scour Countermeasure. *Ocean Engineering* **266** (2022), 113133. DOI: 10.1016/j.oceaneng.2022.113133.
4. A Martinez*, J Dejong, I Akin, A Aleali, C Arson, J Atkinson, P Bandini, T Baser, R Borela, R Boulanger, M Burrall, Y Chen, C Collins, D Cortes, S Dai, T DeJong, E Del Dottore, K Dorgan,

- R Frigaszy, JD Frost, R Full, M Ghayoomi, DI Goldman, N Gravish, IL Guzman, J Hambleton, E Hawkes, M Helms, D Hu, L Huang, **S Huang**, C Hunt, D Irschick, HT Lin, B Lingwall, A Marr, B Mazzolai, B McInroe, T Murthy, K O'Hara, M Porter, S Sadek, M Sanchez, C Santamarina, L Shao, J Sharp, H Stuart, HH Stutz, A Summers, **J Tao**, M Tolley, L Treers, K Turnbull, R Valdes, L von Paassen, G Viggiani, D Wilson, W Wu, X Yu, and J Zheng. Bio-Inspired Geotechnical Engineering: Principles, Current Work, Opportunities and Challenges. *Géotechnique* **72**(8) (2022), 687–705. DOI: 10.1680/jgeot.20.P.170.
5. **Y Tang** and **J Tao**^{*}. Multiscale Analysis of Rotational Penetration in Shallow Dry Sand and Implications for Self-Burrowing Robot Design. *Acta Geotechnica* **17** (2022), 4233–4252. DOI: 10.1007/s11440-022-01492-x.
 6. C Wang, Y Yuan, F Liang^{*}, and J Tao. Experimental Investigation of Local Scour around Cylindrical Pile Foundations in a Double-Layered Sediment under Current Flow. *Ocean Engineering* **251** (2022), 111084. DOI: 10.1016/j.oceaneng.2022.111084.
 7. **Y Zhong** and **J Tao**^{*}. Bio-Inspired Vibrational Wireless Underground Communication System. *Journal of Rock Mechanics and Geotechnical Engineering* **14** (2022). DOI: 10.1016/j.jrmge.2022.06.005.
 8. D Li, **S Huang**, **Y Tang**, H Marvi, J Tao, and D Aukes^{*}. Compliant Fins for Locomotion in Granular Media. *IEEE Robotics and Automation Letters* **6**(3) (2021), 5984–5991. DOI: 10.1109/LRA.2021.3084877.
 9. J Tao. Burrowing Soft Robots Break New Ground. *Science Robotics* **6**(55) (2021). DOI: 10.1126/scirobotics.abj3615.
 10. **S Huang**, **Y Tang**, H Bagheri, D Li, A Ardente[#], D Aukes, H Marvi, and J Tao^{*}. Effects of Friction Anisotropy on Upward Burrowing Behavior of Soft Robots in Granular Materials. *Advanced Intelligent Systems* **2**(6) (2020), 1900183. DOI: 10.1002/aisy.201900183.
 11. **S Huang** and **J Tao**^{*}. Modeling Clam-inspired Burrowing in Dry Sand Using Cavity Expansion Theory and DEM. *Acta Geotechnica* **15**(8) (2020), 2305–2326. DOI: 10.1007/s11440-020-00918-8.
 12. H Li[∞], J Tao^{*}, L Wei, and Y Liu. Explosive Compaction Technology for Loess Embankment Settlement Control: Numerical Simulation and Field Implementation. *Acta Geotechnica* **15**(4) (2020), 975–997. DOI: 10.1007/s11440-019-00777-y.
 13. J Tao^{*}, **S Huang**, and **Y Tang**. SBOR: A Minimalistic Soft Self-Burrowing-out Robot Inspired by Razor Clams. *Bioinspiration & Biomimetics* **15**(5) (2020), 055003. DOI: 10.1088/1748-3190/ab8754.
 14. J Tao^{*}, **S Huang**, and **Y Tang**. Bioinspired Self-Burrowing-Out Robot in Dry Sand. *Journal of Geotechnical and Geoenvironmental Engineering* **145**(12) (2019), 02819002. DOI: 10.1061/(ASCE)GT.1943-5606.0002177.
 15. X Wang[∞] and J Tao^{*}. Polymer-Modified Microbially Induced Carbonate Precipitation for One-Shot Targeted and Localized Soil Improvement. *Acta Geotechnica* **14**(3) (2019), 657–671. DOI: 10.1007/s11440-018-0757-z.
 16. B Zhang^{*}, Hx Wang, Yw Ye, JI Tao, Lz Zhang, and L Shi. Potential Hazards to a Tunnel Caused by Adjacent Reservoir Impoundment. *Bulletin of Engineering Geology and the Environment* **78**(1) (2019), 397–415. DOI: 10.1007/s10064-017-1110-8.
 17. J Li and J Tao^{*}. CFD-DEM Two-Way Coupled Numerical Simulation of Bridge Local Scour Behavior under Clear-Water Conditions. *Transportation Research Record* **2672**(39) (2018), 107–117. DOI: 10.1177/0361198118783170.
 18. J Tao^{*}, J Li, X Wang[∞], and R Bao. Nature-Inspired Bridge Scour Countermeasures: Streamlining and Biocementation. *Journal of Testing and Evaluation* **46**(4) (2018), 20170517. DOI: 10.1520/JTE20170517.
 19. X Wang[∞], J Tao^{*}, R Bao, T Tran, and S Tucker-Kulesza. Surficial Soil Stabilization against Water-Induced Erosion Using Polymer-Modified Microbially Induced Carbonate Precipitation. *Journal of Materials in Civil Engineering* **30** (2018). DOI: 10.1061/(ASCE)MT.1943-5533.0002490.
 20. R Bao, J Li, L Li, TJ Cutright, L Chen, J Zhu, and J Tao^{*}. Effect of Microbial-Induced Calcite Precipitation on Surface Erosion and Scour of Granular Soils: Proof of Concept. *Transportation Research Record* **2657**(1) (2017), 10–18. DOI: 10.3141/2657-02.

21. J Li, J Tao*, and Y Liu. DES Modeling of Erosional Forces around Streamlined Piers and Implications for Scour Countermeasures. *International Journal of Geomechanics* **17**(6) (2017), 04016139. DOI: 10.1061/(ASCE)GM.1943-5622.0000839.
22. X Sun, J Tao, J Li, Q Dai*, and X Yu. Aeroelastic-aerodynamic analysis and bio-inspired flow sensor design for boundary layer velocity profiles of wind turbine blades with active external flaps. *Smart Structures and Systems* **20**(3) (2017), 311–328. DOI: 10.12989/sss.2017.20.3.311.
23. H Tao* and J Tao*. Quantitative Analysis of Piping Erosion Micro-Mechanisms with Coupled CFD and DEM Method. *Acta Geotechnica* **12**(3) (2017), 573–592. DOI: 10.1007/s11440-016-0516-y.
24. J Tao* and H Tao. Factors Affecting Piping Erosion Resistance: Revisited with a Numerical Modeling Approach. *International Journal of Geomechanics* **17**(11) (2017), 04017097. DOI: 10.1061/(ASCE)GM.1943-5622.0000999.
25. J Tao* and J Hu. Energy Harvesting from Pavement via Polyvinylidene Fluoride: Hybrid Piezo-Pyroelectric Effects. *Journal of Zhejiang University-SCIENCE A* **17**(7) (2016), 502–511. DOI: 10.1631/jzus.A1600166.
26. J Tao and X Yu*. Bio-Inspired Directional Sensor with Piezoelectric Microfiber and Helical Electrodes. *Journal of Intelligent Material Systems and Structures* **27**(13) (2016), 1755–1766. DOI: 10.1177/1045389X15610904.
27. Q Gao, J Tao, J Hu, and X Yu*. Laboratory Study on the Mechanical Behaviors of an Anisotropic Shale Rock. *Journal of Rock Mechanics and Geotechnical Engineering* **7**(2) (2015), 213–219. DOI: 10.1016/j.jrmge.2015.03.003.
28. J Li and J Tao*. Streamlining of Bridge Piers as Scour Countermeasures: Optimization of Cross Sections. *Transportation Research Record* **2521**(1) (2015), 162–171. DOI: 10.3141/2521-17.
29. J Tao* and J Li. Streamlining of Bridge Piers as Scour Countermeasures: Effects of Curvature of Vertical Profiles. *Transportation Research Record* **2521**(1) (2015), 172–182. DOI: 10.3141/2521-18.
30. B Zhang*, L Zhang, H Yang, Z Zhang, and J Tao. Subsidence Prediction and Susceptibility Zonation for Collapse above Goaf with Thick Alluvial Cover: A Case Study of the Yongcheng Coalfield, Henan Province, China. *Bulletin of Engineering Geology and the Environment* **75** (2015). DOI: 10.1007/s10064-015-0834-6.
31. R Wang*, J Tao, B Yu, and L Dai. Characterization of Multiwalled Carbon Nanotube-Polymethyl Methacrylate Composite Resins as Denture Base Materials. *The Journal of Prosthetic Dentistry* **111**(4) (2014), 318–326. DOI: 10.1016/j.prosdent.2013.07.017.
32. JY Hu, BX Yu*, and J Tao. Innovative Chromogenic Materials for Pavement Life Extension: Modeling Study of Surface Temperature of Sustainable Asphalt Pavement. *International Journal of Pavement Research and Technology* **6**(2) (2013). DOI: 10.6135/ijprt.org.tw/2013.6(2).141.
33. Z Liu, B Zhang, X Yu*, J Tao, Y Sun, and Q Gao. Thermally Induced Water Flux in Soils. *Transportation Research Record* **2349**(1) (2013), 63–71. DOI: 10.3141/2349-08.
34. Y Sun, CY Chung, X Yu*, Z Liu, and J Tao. Advanced Ultrasonic Technology for Air Void Distribution in Concrete. *Materials Evaluation* **71**(3) (2013).
35. Y Sun, X Yu*, Z Liu, Y Liu, and J Tao. Advanced Ultrasonic Technology for Freezing Damage Prevention of Concrete Pavement. *International Journal of Pavement Research and Technology* **6**(2) (2013). DOI: 10.6135/ijprt.org.tw/2013.6(2).86.
36. J Tao, Y Sun, G Wu, and X Yu*. Emulating the Directional Sensitivity of Fish Hair Cell Sensor. *Journal of Intelligent Material Systems and Structures* **24**(12) (2013), 1484–1493. DOI: 10.1177/1045389X12473378.
37. X Yu, B Zhang, J Tao, and X Yu*. A New Time-Domain Reflectometry Bridge Scour Sensor. *Structural Health Monitoring* **12**(2) (2013), 99–113. DOI: 10.1177/1475921713476331.
38. Z Liu, XB Yu*, JI Tao, and Y Sun. Multiphysics Extension to Physically Based Analyses of Pipes with Emphasis on Frost Actions. *Journal of Zhejiang University SCIENCE A* **13**(11) (2012), 877–887. DOI: 10.1631/jzus.A12ISGT2.

39. Z Liu, B Zhang, X Yu*, and J Tao. A New Method for Soil Water Characteristic Curve Measurement Based on Similarities Between Soil Freezing and Drying. *Geotechnical Testing Journal* **35**(1) (2012), 2–10. DOI: 10.1520/GTJ103653.
40. J Tao and X Yu*. Hair Flow Sensors: From Bio-Inspiration to Bio-Mimicking—a Review. *Smart Materials and Structures* **21**(11) (2012), 113001. DOI: 10.1088/0964-1726/21/11/113001.

Papers in Refereed Conference Proceedings

1. X Li~, J Tao*, and L van Paassen. Effects of the Submerged Height of Mangrove-Inspired Skirt-Pile Group on Scour Mitigation around a Monopile Foundation. In: *Geo-Congress 2023*. Geo-Congress 2023. Los Angeles, California: ASCE, 2023, pp.442–450. DOI: 10.1061/9780784484708.041.
2. MR Shaharear~, Y Tang*, X Li, and J Tao. Penetration Forces of a Rotating Helical Penetrator in Granular Media: Experiments and Insights into the Design of a Burrowing Robot. In: *Geo-Congress 2023*. Geo-Congress 2023. Los Angeles, California: ASCE, 2023, pp.230–238. DOI: 10.1061/9780784484708.021.
3. S Shahhosseini~, M Parekh#, and J Tao*. DEM-MBD Coupled Simulation of a Burrowing Robot in Dry Sand. In: *Geo-Congress 2023*. Geo-Congress 2023. Los Angeles, California: ASCE, 2023, pp.309–317. DOI: 10.1061/9780784484692.032.
4. Y Tang~ and J Tao*. Experimental Study on Continuous and Oscillatory Rotational Penetration. In: *Geo-Congress 2023*. Geo-Congress 2023. Los Angeles, California: ASCE, 2023, pp.303–311. DOI: 10.1061/9780784484708.028.
5. Y Tang~ and J Tao*. Penetration Effect of Penetrator Geometry and Interface Friction on Rotational Penetration Resistance. In: *Geo-Congress 2023*. Geo-Congress 2023. Los Angeles, California: ASCE, 2023, pp.257–265. DOI: 10.1061/9780784484708.024.
6. Y Zhong~ and J Tao*. Comparative Analysis of Horizontal Self-Burrowing Strategies Using Full-Scale DEM-MBD Co-Simulations. In: *Geo-Congress 2023*. Geo-Congress 2023. Los Angeles, California: ASCE, 2023, pp.106–114. DOI: 10.1061/9780784484692.011.
7. S Huang~, N Mahabadi, and J Tao*. Penetration and Relaxation in Dry Granular Materials: Insights from Photoelasticity. In: *Geo-Congress 2022*. Geo-Congress 2022. Charlotte, North Carolina: American Society of Civil Engineers, 2022, pp.130–139. DOI: 10.1061/9780784484043.013.
8. S Huang~ and J Tao*. Bioinspired Horizontal Self-Burrowing Robot. In: *Geo-Congress 2022*. Geo-Congress 2022. Charlotte, North Carolina: American Society of Civil Engineers, 2022, pp.223–231. DOI: 10.1061/9780784484036.023.
9. X Li~, J Tao, and L van Paassen*. Numerical Simulations of Mangrove-Inspired Sacrificial Pile Group for Scour Mitigation. In: *Geo-Congress 2022*. Geo-Congress 2022. Charlotte, North Carolina: American Society of Civil Engineers, 2022, pp.385–394. DOI: 10.1061/9780784484050.040.
10. Y Tang~ and J Tao*. Effect of Rotational Cone on Penetration Resistance and Its Implication to the Design of a Bio-Inspired Self-Burrowing Robots. In: *Geo-Congress 2022*. Geo-Congress 2022. Charlotte, North Carolina: American Society of Civil Engineers, 2022, pp.214–222. DOI: 10.1061/9780784484036.022.
11. Y Zhong~ and J Tao*. Bio-Inspired Vibrational Transmitters for Wireless Underground Communication. In: *Geo-Congress 2022*. Geo-Congress 2022. Charlotte, North Carolina: American Society of Civil Engineers, 2022, pp.43–52. DOI: 10.1061/9780784484067.005.
12. S Huang~, N Mahabadi, and J Tao*. Visualization of a Model Razor Clam Interacting with Dry Granular Materials Using Photoelasticity. In: *American Physical Society March Meeting 2021*. American Physical Society March Meeting 2021. Zoom, 2021.
13. Y Tang~ and J Tao*. Effect of Rotation on Penetration: Toward a Seed Awn-Inspired Self-Burrowing Probe. In: *IFCEE 2021*. The International Foundations Congress & Equipment Expo (IFCEE). Dallas, TX: American Society of Civil Engineers, 2021, pp.149–159. DOI: 10.1061/9780784483428.016.
14. Y Zhong~, Y Gao[∞], and J Tao*. Bio-Inspired Underground Communication Using Seismic Waves. In: *IFCEE 2021*. The International Foundations Congress & Equipment Expo (IFCEE). Dallas, TX: American Society of Civil Engineers, 2021, pp.139–148. DOI: 10.1061/9780784483428.015.

15. **S Huang**[~], N Mahabadi, and J Tao^{*}. Impact of Shell Opening of a Model Razor Clam on the Evolution of Force Chains in Granular Media. In: *Geo-Congress 2021: Biogeotechnics*. Geo-Congress 2020. Minneapolis, Minnesota: ASCE, 2020, pp.272–281. DOI: 10.1061/9780784482834.030.
16. **S Huang**[~] and J Tao^{*}. Bio-Inspired Dual-Anchor Burrowing: Effect of Vertical Curvature of the Shell. In: *Geo-Congress 2020*. Geo-Congress 2020. Minneapolis, Minnesota: ASCE, 2020, pp.282–292. DOI: 10.1061/9780784482834.031.
17. **Y Tang**[~], **S Huang**, and J Tao^{*}. Effect of Rotation on Seeds' Self-Burial Process: Insights from DEM Simulations. In: *Geo-Congress 2020*. Geo-Congress 2020. Minneapolis, Minnesota: ASCE, 2020, pp.293–301. DOI: 10.1061/9780784482834.032.
18. **S Huang**[~] and J Tao^{*}. Modeling of the Burrowing Mechanism by Razor Clam: Role of Penetration Kinematics. In: *IFCEE 2018*. IFCEE 2018. Orlando, Florida: ASCE, 2018, pp.547–556. DOI: 10.1061/9780784481585.053.
19. **S Huang** and J Tao^{*~}. The Interplay between Shell Opening and Foot Penetration of a Model Razor Clam: Insights from DEM Simulation. In: *B2G Atlanta 2018 Bio-mediated and Bio-inspired Geotechnics*. B2G Atlanta 2018 Bio-mediated and Bio-inspired Geotechnics. Atlanta, GA, 2018. <https://par.nsf.gov/servlets/purl/10061092>.
20. **J Li**[~] and J Tao^{*}. Experimental Investigation of Granular Bulk Density Effect on Bridge Local Scour under Clear-Water Conditions. In: *IFCEE 2018*. IFCEE 2018. Orlando, Florida: ASCE, 2018, pp.735–745. DOI: 10.1061/9780784481578.070.
21. **Pandey, G** and J Tao^{*~}. Moisture Sensitive Polymer-Modified Enzyme-Induced Carbonate Precipitation for Soil Improvement. In: *B2G Atlanta 2018 Bio-mediated and Bio-inspired Geotechnics*. B2G Atlanta 2018 Bio-mediated and Bio-inspired Geotechnics. Atlanta, GA, 2018.
22. **H Tao**[~] and J Tao^{*}. Conceptual Model of Critical Hydraulic Gradient for Piping Considering Friction Resistance. In: *IS-Atlanta2018: Geo-mechanics from Micro to Macro*. IS-Atlanta2018: Geo-mechanics from Micro to Macro. Atlanta, GA, 2018.
23. **H Tao**[~] and J Tao^{*}. Impact of Gradation Change on Mechanical Behavior of Soil: DEM and Community Detection. In: *Proceedings of GeoShanghai 2018 International Conference: Fundamentals of Soil Behaviours*. Proceedings of GeoShanghai 2018 International Conference. Ed. by A Zhou, J Tao, X Gu, and L Hu. Singapore: Springer, 2018, pp.959–966. DOI: 10.1007/978-981-13-0125-4_106.
24. **H Tao**[~] and J Tao^{*}. Quantifying the Effect of Suffusion on Strength of Soil Using Network-Science Based Community Detection Method. In: *Transportation Research Board 97th Annual Meeting*. Transportation Research Board 97th Annual Meeting. Washington DC, United States, 2018, pp.15p. <https://trid.trb.org/view/1496769>.
25. **X Wang**[∞] and J Tao^{*~}. Polymer-Modified Microbially-Induced Carbonate Precipitation Treatment Method for Surface Erosion Prevention. In: *Transportation Research Board 97th Annual Meeting*. Transportation Research Board 97th Annual Meeting. Washington DC, United States, 2018, pp.16p. <https://trid.trb.org/view/1496755>.
26. **R Bao**, **J Li**, L Li, TJ Cutright, L Chen, J Zhu, and J Tao^{*~}. Bio-Inspired Bridge Scour Countermeasures: Streamlining and Biocementation. In: *DEStech Transactions on Materials Science and Engineering*. The 2017 International Conference on Transportation Infrastructure and Materials (ICTIM). Shandong, China, 2017. DOI: 10.12783/dtmse/ictim2017/10180.
27. **S Huang**[~] and J Tao^{*}. A DEM Study of Penetrating in Granular Materials with Changing Shape. In: *TRB 96th Annual Meeting Compendium of Papers*. Transportation Research Board 96th Annual Meeting. Washington, DC, 2017, pp.14. <https://trid.trb.org/view/1439217>.
28. **S Huang**[~] and J Tao^{*}. Penetrating in Granular Materials: Effects of Penetrator Dynamics. In: *Geotechnical Frontiers 2017*. Geotechnical Frontiers 2017. Orlando, Florida: ASCE, 2017, pp.604–613. DOI: 10.1061/9780784480441.063.

29. J Li[~] and J Tao^{*}. Experimental Investigation of the Pier Streamlining Effect on Bridge Local Scour under Clear Water Conditions. In: *Geotechnical Frontiers 2017*. Geotechnical Frontiers 2017. Orlando, Florida: ASCE, 2017, pp.20–28. DOI: 10.1061/9780784480465.003.
30. H Tao[~] and J Tao^{*}. Numerical Modeling and Analysis of Suffusion Patterns for Granular Soils. In: *Geotechnical Frontiers 2017*. Geotechnical Frontiers 2017. Orlando, Florida: ASCE, 2017, pp.487–496. DOI: 10.1061/9780784480472.051.
31. H Tao[~] and J Tao^{*}. Suffusion Patterns for Granular Soils: Observations from Numerical Simulations. In: *TRB 96th Annual Meeting Compendium of Papers*. Transportation Research Board 96th Annual Meeting. Washington DC, United States, 2017, pp.19p. <https://trid.trb.org/view/1438519>.
32. M Cymbal[#], H Tao[~], and J Tao^{*}. Underwater Inspection with Remotely Controlled Robot and Image Based 3D Structure Reconstruction Techniques. In: *Transportation Research Board 95th Annual Meeting Transportation Research Board*. Transportation Research Board 95th Annual Meeting Transportation Research Board. Washington DC, United States, 2016, pp.15p. <https://trid.trb.org/view/1394427>.
33. J Hu and J Tao. Energy Harvesting from Pavement via PVDF: Hybrid Piezo-Pyroelectric Effects. In: *Geo-Chicago 2016*. Geo-Chicago 2016. Chicago, Illinois: ASCE, 2016, pp.556–566. DOI: 10.1061/9780784480137.053.
34. J Li[~], Y Liu, and J Tao^{*}. Streamlining of Bridge Piers as Scour Countermeasures: Insights from DES Modeling. In: *Fourth Geo-China International Conference*. Fourth Geo-China International Conference. Shandong, China: ASCE, 2016, pp.85–92. DOI: 10.1061/9780784480069.011.
35. J Li[~] and J Tao^{*}. Coherent Dynamics of a Turbulence Structure around Streamlined Piers. In: *Geo-Chicago 2016*. Geo-Chicago 2016. Chicago, Illinois: ASCE, 2016, pp.651–660. DOI: 10.1061/9780784480151.064.
36. J Li[~] and J Tao^{*}. DES Investigation of the Effect of Pier Streamlining on Coherent Dynamics of the Turbulence Structure Around Piers. In: *TRB 95th Annual Meeting Compendium of Papers*. Transportation Research Board 95th Annual Meeting. Washington DC, United States: TRB, 2016, pp.14p. <https://trid.trb.org/view/1393582>.
37. J Li[~] and J Tao^{*}. DES Investigation of the Effect of Pier Streamlining on Coherent Dynamics of the Turbulence Structure Around Piers. In: *2016 Geotechnical and Structural Engineering Congress*. 2016 Geotechnical and Structural Engineering Congress. Phoenix, Arizona, US: ASCE, 2016, pp.14p.
38. Y Liu, J Tao, X Yu, Z Liu, and X Yu^{*}. Characterization of Freezing Fresh Concrete by Multiple Non-Destructive Methods. In: *Fourth Geo-China International Conference*. Fourth Geo-China International Conference. Shandong, China: ASCE, 2016, pp.125–135. DOI: 10.1061/9780784480021.017.
39. Mopur, Gothem, J Tao[~], and Liang, Robert. Stabilization of Peat Subgrade for Existing Roadways Using Geosynthetics Encased Polyurethane Foam Columns: Laboratory Feasibility Study. In: *2016 Geotechnical and Structural Engineering Congress*. 2016 Geotechnical and Structural Engineering Congress. Phoenix, Arizona, US: ASCE, 2016, pp.14p.
40. H Tao[~] and J Tao^{*}. CFD-DEM Modeling of Piping Erosion Considering the Properties of Sands. In: *Geo-Chicago 2016*. Geo-Chicago 2016. Chicago, Illinois: ASCE, 2016, pp.641–650. DOI: 10.1061/9780784480151.063.
41. H Tao[~] and J Tao^{*}. Numerical Modeling of the Mechanisms of Piping Erosion with Coupled CFD and DEM Method. In: *TRB 95th Annual Meeting Compendium of Papers*. Transportation Research Board 95th Annual Meeting. Washington DC, United States, 2016, pp.17p. <https://trid.trb.org/view/1393574>.
42. J Tao^{*}, J Hu, and G Wu. Energy Harvesting from Pavements via PVDF: Hybrid Piezo-Pyroelectric Effects. In: *2016 SPIE Smart Structures and Materials + Nondestructive Evaluation and Health Monitoring*. SPIE Smart Structures and Materials + Nondestructive Evaluation and Health Monitoring. Ed. by G Park. Las Vegas, Nevada, United States, 2016, pp.97992L. DOI: 10.1117/12.2218369.
43. J Li[~], J Tao, and X Yu^{*}. Streamlining of Bridge Pier as a Scour Countermeasure: A Feasibility Study. In: *IFCEE 2015*. IFCEE 2015. San Antonio, Texas: ASCE, 2015, pp.319–329. DOI: 10.1061/9780784479087.032.
44. B Yu^{*}, X Yu, J Tao, and Y Guo. Innovative Multiscale Sensing and Computational Simulations for Bridge Scour Risk Management. In: *6th International Conference on Advances in Experimental Structural*

- Engineering 11th International Workshop on Advanced Smart Materials and Smart Structures Technology. 6th International Conference on Advances in Experimental Structural Engineering; 11th International Workshop on Advanced Smart Materials and Smart Structures Technology. Urbana-Champaign, United States, 2015. http://sstl.cee.illinois.edu/papers/aeseancrisst15/318_Yu_Innovative.pdf.*
45. Q Gao[~], JL Tao, JY Hu^{*}, and X Yu. Mechanical Behaviors of an Anisotropic Shale Rock. In: *Shale Energy Engineering Conference 2014*. Shale Energy Engineering Conference 2014. Pittsburgh, Pennsylvania, United States: ASCE, 2014, pp.159–167. DOI: 10.1061/9780784413654.017.
 46. Q Gao, J Hu, J Tao, and X Yu. Experimental Characterization of the Anisotropic Behaviors of Shale Rock. In: *Geo-Congress 2014*. Geo-Congress 2014. Atlanta, Georgia: ASCE, 2014, pp.563–571. DOI: 10.1061/9780784413272.054.
 47. J Tao[~], X Yu, and XB Yu^{*}. Design and Application of A Field Bridge Scour Monitoring Sensor Based on TDR. In: *Transportation Research Board 93rd Annual Meeting*. Transportation Research Board 93rd Annual Meeting. Washington DC, United States, 2014, pp.16p. <https://trid.trb.org/view/1289359>.
 48. J Tao[~] and X Yu^{*}. Flow and Scour Patterns around Bridge Piers with Different Configurations: Insights from CFD Simulations. In: *Geo-Congress 2014*. Geo-Congress 2014. Atlanta, GA: ASCE, 2014, pp.2655–2664. DOI: 10.1061/9780784413272.256.
 49. J Tao[~] and X Yu^{*}. Influence of Shunt-damping Circuit on the Dynamic Response of a Bio-Inspired Piezoelectric Micropillar Sensor. In: *Bioinspiration, Biomimetics, and Bioreplication 2014*. SPIE 2014. Vol. 9055. San Diego, California, USA: International Society for Optics and Photonics, 2014, pp.90550J. DOI: 10.1117/12.2057518.
 50. J Tao[~] and X Yu^{*}. Sediment Transport Model Considering Turbulent Flow. In: *Geo-Congress 2014*. Geo-Congress 2014. Atlanta, GA: ASCE, 2014, pp.1072–1080. DOI: 10.1061/9780784413272.104.
 51. J Huang, J Tao, and X Yu^{*}. Feasibility analyses of carbon nanotubes for the design of a new hair flow sensor. In: *Structural Health Monitoring 2013: A Roadmap to Intelligent Structures - Proceedings of the 9th International Workshop on Structural Health Monitoring, IWSHM 2013*. 9th International Workshop on Structural Health Monitoring: A Roadmap to Intelligent Structures, IWSHM 2013. Stanford, CA: DEStech Publications, 2013, pp.2138–2146. <https://asu.pure.elsevier.com/en/publications/feasibility-analyses-of-carbon-nanotubes-for-the-design-of-a-new->.
 52. Y Sun, J Tao, G Wu, and X Yu^{*}. A Non-Contact Wearable Wireless Body Sensor Network for Multiple Vital Signal Detection. In: *2013 IEEE SENSORS*. 2013 IEEE SENSORS. Baltimore, MD, USA: IEEE, 2013, pp.1–4. DOI: 10.1109/ICSENS.2013.6688328.
 53. J Tao[~] and X Yu^{*}. Optimization of bio-inspired piezoelectric composite hair sensor - Mechanical impedance matching. In: *Structural Health Monitoring 2013: A Roadmap to Intelligent Structures - Proceedings of the 9th International Workshop on Structural Health Monitoring, IWSHM 2013*. 9th International Workshop on Structural Health Monitoring: A Roadmap to Intelligent Structures, IWSHM 2013. Stanford, CA: DEStech Publications, 2013, pp.2157–2165. <https://asu.pure.elsevier.com/en/publications/optimization-of-bio-inspired-piezoelectric-composite-hair-sensor->.
 54. J Tao, Q Gao, and X Yu^{*}. Assessment of the Effects of Pier Configurations on the Flow Pattern and Scour: A CFD Modeling Approach. In: *TRB 92nd Annual Meeting Compendium of Papers DVD*. Transportation Research Board 92nd Annual Meeting. Washington DC, United States, 2013, pp.18p. <https://trid.trb.org/view/1241688>.
 55. J Tao[~], X Yu, and X Yu^{*}. Real-Time TDR Field Bridge Scour Monitoring System. In: *Structures Congress 2013*. Structures Congress 2013. Pittsburgh, Pennsylvania, United States: ASCE, 2013, pp.2996–3009. DOI: 10.1061/9780784412848.262.
 56. J Tao[~] and X Yu^{*}. A Framework for Numerical Simulation of Bridge Scour Focusing on the Improvements of Sediment Transport Models. In: *TRB 92nd Annual Meeting Compendium of Papers*. Transportation Research Board 92nd Annual Meeting. Washington DC, United States, 2013, pp.19p. <https://trid.trb.org/view/1241695>.

57. Z Liu, X Yu*, J Tao, G Wu, and Y Sun. Thermo-Hydro-Mechanical Modeling of Soil Pipe Interactions in Cold Weather Conditions. In: *Transportation Research Board 91st Annual Meeting*. Transportation Research Board 91st Annual Meeting. Washington DC, United States, 2012, pp.15p. <https://trid.trb.org/view/1130249>.
58. Y Sun, X Yu*, Z Liu, Y Liu, and J Tao. Advanced Ultrasonic Technology for Measurement of Air Void Size Distribution in Concrete. In: *TRB 91st Annual Meeting Compendium of Papers DVD*. Transportation Research Board 91st Annual Meeting. Washington DC, United States, 2012, pp.17p. <https://trid.trb.org/view/1130349>.
59. X Yu~, J Tao*, and X Yu. Comparison Study on Computer Simulations for Bridge Scour Estimation. In: *Georisk 2011*. Georisk 2011. Atlanta, Georgia, United States: ASCE, 2012, pp.1125–1132. DOI: 10.1061/41183(418)123.
60. Z Liu, B Zhang, X Yu*, B Zhang, and J Tao. A New Freezing Method for Soil Water Characteristic Curve Measurement. In: *TRB 90th Annual Meeting Compendium of Papers DVD*. Transportation Research Board 90th Annual Meeting. Washington, DC United States, 2011, pp.14p. <https://trid.trb.org/view/1093119>.
61. J Tao~, X Yu*, and J Berilla. Micropillar sensing element for bio-inspired flow sensors. In: *Structural Health Monitoring 2011: Condition-Based Maintenance and Intelligent Structures - Proceedings of the 8th International Workshop on Structural Health Monitoring*. 8th International Workshop on Structural Health Monitoring 2011: Condition-Based Maintenance and Intelligent Structures. Stanford, CA, 2011, pp.1732–1739. <https://asu.pure.elsevier.com/en/publications/micropillar-sensing-element-for-bio-inspired-flow-sensors>.
62. J Tao, M Richardson, X Yu*, B Zhang, Y Sun, and Z Liu. Performance Evaluation of a Wireless Sensor Network Protocol for Structural Health Monitoring. In: *Transportation Research Board 90th Annual Meeting*. Transportation Research Board 90th Annual Meeting. Washington DC, United States, 2011, pp.15p. <https://trid.trb.org/view/1092923>.
63. J Tao, X Yu*~, and J Berrilla. Bio-Inspired Flow and Acoustic Sensor. In: *Proc. SPIE 8019, Sensors, and Command, Control, Communications, and Intelligence (C3I) Technologies for Homeland Security and Homeland Defense X*. Sensors, and Command, Control, Communications, and Intelligence (C3I) Technologies for Homeland Security and Homeland Defense X. Vol. 8019. Orlando, Florida, United States: International Society for Optics and Photonics, 2011, pp.80190R. DOI: 10.1117/12.886564.
64. X Yu*~, J Tao, and J Berilla. A Bio-Inspired Flow Sensor. In: *Proc. SPIE 7646, Nanosensors, Biosensors, and Info-Tech Sensors and Systems 2010*. Nanosensors, Biosensors, and Info-Tech Sensors and Systems 2010. Vol. 7646. San Diego, California, United States: International Society for Optics and Photonics, 2010, pp.764618. DOI: 10.1117/12.849230.
65. X Yu*, B Zhang, J Tao, and Z Liu. Smart Pavement Sensor Based on Thermoelectricity Power. In: *Proc. SPIE 7647, Sensors and Smart Structures Technologies for Civil, Mechanical, and Aerospace Systems 2010*. Sensors and Smart Structures Technologies for Civil, Mechanical, and Aerospace Systems 2010. Vol. 7647. San Diego, California, United States: International Society for Optics and Photonics, 2010, pp.76470X. DOI: 10.1117/12.849227.

Preprints

1. D Li, S Huang, Y Tang, J Tao, H Marvi, and DM Aukes*. *Compliant Fins for Locomotion in Granular Media*. 2021. arXiv: 2101.03624. <http://arxiv.org/abs/2101.03624>. preprint.

Working Papers

1. S Huang^x, N Mahabadi, and J Tao*. “Photoelasticity Reveals Expansion-Penetration Interplay in Granular Packing”. 2024. In preparation.
2. S Huang, N Mahabadi, and J Tao*. “Visulizing Force and Displacement Fields in Soil-Structure Interactions Using Phtoelasticity”. 2024. In preparation.

3. **S Huang** and **J Tao** *. “The Interplay between Shell Opening and Foot Penetration of a Model Razor Clam”. 2024. In preparation.
4. **S Huang**, **Y Tang**, **H Bagheri**, **D Li**, **D Aukes**, **H Marvi**, and **J Tao**. “Self-Burrowing Mechanisms: Bioinsprations and Bio-Inspired Robots”. 2024. In preparation.
5. **X Li**, **L van Paassen**, and **J Tao** *. “Effects of Sediment Densification and Strengthening on Scour around Monopiles Using Mangrove-Inspired Skirt Piles”. 2023. *Acta Geotechnica*, under review.
6. **Y Tang**, **Y Zhong**, and **J Tao** *. “Bio-Inspired Rotational Penetration and Horizontal Self-burrowing Soft Robot”. 2023. *Acta Geotechnica*, under review.

Patents

1. **J Tao**, **S Huang**, **Y Tang**, and **Y Zhong**. “Bioinspired Horizontal Burrowing Robot”. Pat. 63/479,208. 2023. Provisional Patent Application Filed.
2. **J Tao** and **Y Zhong**. “Bio-Inspired Underground Vibrational Communication”. Pat. 63/481,001. 2023. Provisional Patent Application Filed.

Edited Books

1. **L Hu**, **X Gu**, **J Tao**, and **A Zhou**, eds. *Proceedings of GeoShanghai 2018 International Conference: Multi-physics Processes in Soil Mechanics and Advances in Geotechnical Testing*. Springer Singapore, 2018. <https://www.springer.com/gp/book/9789811300943>.
2. **A Zhou**, **J Tao**, **X Gu**, and **L Hu**, eds. *Proceedings of GeoShanghai 2018 International Conference: Fundamentals of Soil Behaviours*. Springer Singapore, 2018. <https://www.springer.com/gp/book/9789811301247>.
3. **R Liang**, **J Qian**, and **J Tao**, eds. *Advances in Soil Dynamics and Foundation Engineering, Geotechnical Special Publication No. 240*. Geo-Shanghai 2014. American Society of Civil Engineers, 2014. <https://ascelibrary.org/doi/book/10.1061/9780784413425>.

Technical Reports

1. **Q Huang**, **J Thomas**, and **J Tao**. *Evaluation of Effective Bridge Deck Repair Maintenance Methods*. Final Report FHWA/OH-2018-11. University of Akron; Ohio Department of Transportation, 2018, 35p. <https://trid.trb.org/view/1565998>.
2. **J Tao**. *Use of Crushed Recycled Glass in the Construction of Local Roadways Current Status of Recycled Glass Collection and Processing in the State of Ohio*. Final Report FHWA/OH-2017-19. University of Akron, 2017. <https://rosap.nhtl.bts.gov/view/dot/32288>.
3. **J Tao**, **J Li**, **S Huang**, **R Liang**, **A Ozdogan-Dolcek**, and **W Likos**. *Performance Comparison of Abutment and Retaining Wall Drainage Systems*. Final Report FHWA/OH-2017-36. University of Akron; Ohio Department of Transportation, 2017, 200p. <https://trid.trb.org/view/1507624>.
4. **J Tao**, **Z Luo**, and **G Pandey**. *Evaluation of Post Flooding Shoulder Reconditioning - State Library of Ohio Digital Collection*. Final Report 974924814. Columbus, Ohio: University of Akron; Ohio Department of Transportation, 2017, p. 84. <https://ohiomemory.org/digital/collection/p267401ccp2/id/14690/>.
5. **J Tao** and **R Liang**. *Stabilization of Peat Deposits for Roadway Construction and Remediation*. Final Report FHWA/OH-2015/22. University of Akron; Ohio Department of Transportation, 2015, 85p. <https://trid.trb.org/view/1371637>.

PhD Thesis

1. **J Tao**. “Fusion of Numerical Modeling and Innovative Sensing to Advance Bridge Scour Research and Practice”. PhD thesis. Cleveland, Ohio: Case Western Reserve University, 2013. 256 pp. https://etd.ohiolink.edu/apexprod/rws_olink/r/1501/10?clear=10&p10_accession_num=case1372710604.

Invited Talks

- 2023-12 Simulation-inspired Theory on Reciprocating Burrowing Robot. 2023 Machine-Ground Interaction Consortium (MaGIC). Madison, Wisconsin
- 2023-10 Bio-inspired Burrowing Mechanisms and Robots. Forum on Interdisciplinary Research Frontiers at 14th Chinese National Conference on Soil Mechanics and Geotechnical Engineering. Wuhan, China
- 2022-12 Short Course on Bio-inspired Geotechnics. University of Natural Resources and Life Sciences. Vienna, Austria
- 2022-12 Bio-inspired Geotechnics in a Nutshell. ASCE Web Conference on Bio-inspired Geotechnics. Virtual
- 2022-12 Bio-inspired active underground sensing network. ASCE Web Conference on Bio-inspired Geotechnics. Virtual
- 2022-11 An Introduction to Bio-inspired Geotechnics. Xi'an University of Technology. Virtual, Xi'an, China
- 2022-08 'Ground-breaking' bio-inspired geotechnics at ASU. Workshop on Bio- and Intelligent Geotechnics. Virtual, Chongqing University
- 2022-05 'Ground-breaking' bio-inspired geotechnics at ASU. Arizona Geo-Institute Member Meeting. Scottsdale, AZ
- 2022-05 Burrowing is a Geotechnical Engineering Problem. 18th Purdue Geotechnical Society Workshop. Purdue University
- 2022-04 Bio-inspired Scour Countermeasures. ASCE SEI Bio-inspired Structures Committee Lightning Talk. Virtual and Atlanta, Georgia
- 2022-04 Burrowing and Symmetry Breaking. Workshop on Grand Challenges for Burrowing Soft Robots, Robosoft 2022. Virtual and Edinburgh, Scotland
- 2021-06 Bio-inspired Geotechnics and Self-burrowing robot. ASCE SEI Bio-inspired Structures Committee Lightning Talk. Virtual
- 2021-02 Bio-inspired Geotechnics and Self-burrowing robot. PITT Geotechnical Colloquium Series. Virtual and Pittsburgh, Pennsylvania, United States
- 2020-01 SBOR: a minimalistic soft self-burrowing-out robot inspired by razor clams. Seminar for Center of Bio-mediated and Bio-inspired Geotechnics. Tempe, AZ, USA
- 2019-07 Overview and Reflections of the Course Bioinspired Design at ASU. 1st International Workshop on Bioinspired Geotechnics. Pacific Grove, CA
- 2019-06 Razor clam inspired burrowing robot. University of California, Davis. Davis, CA, USA
- 2019-05 Bio-inspired Geotechnics. 2019 CBBG REU/RET/YS Onboarding. Tempe, AZ, USA
- 2019-03 Bio-inspired Geotechnics. WSU Civil Engineering Graduate Seminar Series. Virtual and WSU
- 2018-08 Bio-inspired Geotechnics. US-Korea Conference on Science, Technology and Entrepreneurship. New York, NY
- 2018-09 Bridge Scour and its Countermeasures: Streamlining, Biocementation and Monitoring. Geotechnical Special Presentation, Arizona Chapters for the Geo-Institute and Association of Engineering and Environmental Geologists. Scottsdale, AZ
- 2018-05 Bio-inspired Geotechnics. Hohai University. Nanjing, China
- 2018-04 Bio-inspired Geotechnics and Self-burrowing robot. Geosciences Colloquium Series at University of Akron. Akron, Ohio, USA
- 2017-05 Bio-inspired Smart and Sustainable Infrastructure. The 2nd Transportation Research Congress. Beijing, China
- 2017-06 Bio-inspired Smart and Sustainable Infrastructure. Huazhong University of Science and Technology. Wuhan, Hubei, China
- 2017-06 Bio-inspired Smart and Sustainable Infrastructure. Hebei University of Technology. Tianjin, China
- 2017-06 Bio-inspired Smart and Sustainable Infrastructure. Tongji University. Shanghai, China
- 2017-05 Bio-inspired Smart and Sustainable Infrastructure. University of California, Davis. Davis, CA, USA

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| 2016-01 | Underwater Inspection with Remotely Controlled Robot and Image Based 3D Structure Reconstruction Techniques. Transportation Research Board 95th Annual Meeting. Washington DC, United States |
| 2014-06 | Bridge Scour: Monitoring, Sensing and Modelling. China University of Geosciences. Beijing, China |
| 2014-06 | Bridge Scour: Monitoring, Sensing and Modelling. Hebei University of Technology. Tianjin, China |
| 2014-05 | Bridge Scour: Monitoring, Sensing and Modelling. Tongji University. Shanghai, China |
| 2014-05 | Bridge Scour: Monitoring, Sensing and Modelling. Guilin University. Guilin, Guangxi, China |
| 2013-03 | Bridge Scour: Monitoring, Sensing and Modelling. The University of Akron. Akron, Ohio, USA |
| 2013-03 | Bridge Scour: Monitoring, Sensing and Modelling. Purdue University North Central. Westville, Indiana, USA |

PROFESSIONAL ACTIVITIES AND SERVICE

Summary of Professional Activities and Service

| | |
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| Editor, Associate Editor for peer-reviewed journals | 3 |
| Member of Editorial Board | 1 |
| International/national conference chaired | 2 |
| International/national conference committees | 4 |
| International/national conference sessions organized | 1 |
| International/national conference sessions chaired | 12 |
| Peer Reviewer for Journals | 32 |
| Peer Reviewer for Conferences | 1 |
| Proposal Review Service for Funding Agencies | 3 |
| University-level Committees | 1 |
| Engineering School-level Committees | 3 |
| Unit-level Committees | 9 |

Conference Organization

| | | |
|------|--|-----------------------|
| 2025 | Leading Member of Organizing Committee @International Conference on Biomediated and Bioinspired Geotechnics | Tempe, USA |
| 2024 | Co-chair of Technical Committee @GeoShanghai International Conference 2024 (GeoShanghai 2024) | Shanghai, China |
| 2023 | Session Chair of Session on Bioinspired Geotechnics @Engineering Mechanics Institute Conference | Atlanta, GA |
| 2022 | Co-chair of Organizing Committee @ASCE Web Conference on Bio-inspired Geotechnics | Virtual |
| 2021 | Track Chair of Track K: Scour and Erosion Countermeasures @The 10th International Conference on Scour and Erosion (ICSE-10) | Online |
| 2021 | Member of Organizing Committee @The 10th International Conference on Scour and Erosion (ICSE-10) | Online |
| 2021 | Session Chair of Advances in Ground Improvement Materials @The International Foundations Congress & Equipment Expo (IFCEE) | Online and Dallas, TX |
| 2019 | Session Chair of Session on Geotechnics of Soil Erosion @Geo-Congress 2019 | Philadelphia, CA |
| 2019 | Session Chair of Session on Bioinspired Burrowing Excavation and Tunneling @Engineering Mechanics Institute Conference | Pasadena, CA |
| 2019 | Member of Organizing Committee @The 9th Annual IACIP Workshop | Washington, D.C. |

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| 2018 | Member of Local Organizing Committee @Early Career Geotechnical Faculty Workshop | Cleveland, OH |
| 2018 | Co-Editor of Proceedings of GeoShanghai 2018 International Conference @The 4th GeoShanghai International Conference | Shanghai, China |
| 2018 | Member of Organizing Committee @International Conference on Transportation Infrastructure and Materials | Tianjin, China |
| 2017 | Session Chair of Technical Session on “Slope Stability and Retaining Walls” @World Transportation Convention | Beijing, China |
| 2017 | Session Chair of Technical Session on “Soil mechanics and behaviors” @International Conference on Transportation Infrastructure and Materials (ICTIM) | Beijing, China |
| 2017 | Session Organizer of MS 72 Recent Trends in Granular Materials Across the Scales @ASCE Engineering Mechanics Institute Conference | San Diego, CA |
| 2017 | Session Chair of Student poster competition @The 7th Annual IACIP Workshop | Washington, D.C. |
| 2016 | Session Chair of Technical Session on “Scour at Bridge and Structures: Mechanism Prediction and Countermeasures” @Geo-Chicago | Chicago, Illinois |
| 2014 | Co-Editor of Geotechnical Special Publication Volume 240 @The 3rd GeoShanghai International Conference | Shanghai, China |
| 2014 | Session Chair of Student poster competition @The 4th Annual IACIP Workshop | Washington, D.C. |

Editorial Services

| | | |
|-----------|------------------------|--|
| 2022– | Associate Editor | Biogeotechnics |
| 2022–2023 | Co-editor | Special Issue on "Bio-inspired Geotechnics" by Acta Geotechnica |
| 2022–2023 | Co-editor | Special Issue on "Bio-inspired Burrowing Robots" by Frontiers in Robotics and AI |
| 2017– | Editorial Board Member | Journal of Testing and Evaluation |

Reviewing Services

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| Ad-hoc Reviewer | National Science Foundation |
| Panelist | National Science Foundation CMMI-ECI Program |
| Ad-hoc Reviewer | Hong Kong Research Grant Council |
| Acta Geotechnica | Springer |
| Canadian Geotechnical Journal | Canadian Science Publishing |
| Computers and Geomechanics | Elsevier |
| Construction and Building Materials | Elsevier |
| Engineering Geology | Elsevier |
| Engineering with Computers | Springer |
| Geotechnical Testing Journal | ASTM |
| Géotechnique | ICE |
| Granular Matter | Springer |
| International Journal of Heat and Mass Transfer | Elsevier |
| International Journal for Numerical and Analytical Methods in Geomechanics | Wiley |
| International Journal of Geomechanics | ASCE |
| International Journal of Geosynthetics and Ground Engineering | Springer |
| International Journal of Geotechnical Engineering | Taylor and Francis |

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| Journal of Aerospace Engineering | ASCE |
| Journal of Geotechnical and Geoenvironmental Engineering | ASCE |
| Journal of Hydraulic Engineering | ASCE |
| Journal of Infrastructure Preservation and Resilience | Springer |
| Journal of Infrastructure Systems | ASCE |
| Journal of Materials in Civil Engineering | ASCE |
| Journal of Testing and Evaluations | ASTM |
| Journal of Transportation Engineering | ASCE |
| Journal of Renewable and Sustainable Energy | AIP |
| Materials and Design | Elsevier |
| Microsystem Technologies | Springer |
| Natural Hazards | Springer |
| Ocean Engineering | Elsevier |
| Powder Technology | Elsevier |
| Science Robotics | Science Magazine |
| Sensors | MDPI |
| Smart Structures and Systems, An International Journal | Techno Press |
| Underground Space | Elsevier |
| Regular reviewer for conferences | ASCE, TRB, ISSMGE |

University Services

| | | |
|-----------|------------------------|--|
| 2023– | Committee Member | Dean's Faculty Advisory Council @FSE, ASU |
| 2022– | Committee Member | Laboratory Committee @SSEBE, ASU |
| 2022 | Committee Member | Faculty Search Committee @SSEBE, ASU |
| 2022 | Panelist | NSF CAREER proposal workshop @SSEBE, ASU |
| 2021 | Panelist | NSF CAREER proposal workshop @SSEBE, ASU |
| 2020– | Committee Member | Curriculum Committee @CBBG |
| 2020 | Panelist | NSF CAREER proposal writing workshop @FSE, ASU |
| 2019 | Faculty representative | Graduation Convocation @ASU |
| 2018–2022 | Committee Member | CESE Academic Affairs (Curriculum) Committee of School of Sustainable Engineering and the Built Environment @ASU |
| 2018– | Faculty Volunteer | E2 Camp @ASU |
| 2014–2018 | Committee Chair | Computer Committee of Department of Civil Engineering @UAkron |
| 2014–2018 | Committee Member | Faculty Research Committee @UAkron |
| 2013–2018 | Committee Co-Chair | Seminar Committee of Department of Civil Engineering @UAkron |

Professional Committee Service

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| 2017– | Committee Member | Committee on Strategic Planning of International Association of Chinese Infrastructure Professionals (IACIP) |
| 2017– | Chair for Award Sub-committee | Committee on Geotechnics of Soil Erosion of ASCE Geo-Institute |
| 2017–2019 | Committee Chair | Committee on Slope Stability and Retaining Structures of World Transport Convention (China) |
| 2016–2019 | Committee Member | AFS40 Committee on Subsurface Soil-Structure Interaction of TRB |
| 2016–2019 | Committee Member | AFD35 Committee on Bridge Management of TRB |
| 2016–2019 | Committee Member | AFD20 Committee on Pavement Monitoring and Evaluation of TRB |
| 2015– | Committee Member | Committee on Engineering Geology and Site Characterization of ASCE Geo-Institute |
| 2015–2018 | Committee Member | AFS10 Standing Committee on Transportation Earthworks of TRB |

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| 2014–2017 | Young Committee Member | AFS60 Standing Committee on Hydrology of TRB |
| 2014 | Young Committee Member | AFS40 Committee on Subsurface Soil-Structure Interaction of TRB |
| 2013–2016 | Committee Member | AFD35 Committee on Bridge Management of TRB |
| 2013–2016 | Young Committee Member | AFD20 Committee on Pavement Monitoring and Evaluation of TRB |

PERSONNEL: STUDENT SUPERVISOR/MENTORING, TEACHING, DISSERTATION COMMITTEES, RESEARCHERS, AND OUTREACH

Summary of Mentoring

| | |
|---------------------------------|----|
| PostDoc Researchers | 1 |
| PhD Students Graduated | 5 |
| PhD Students Current | 2 |
| MS Students Graduated | 14 |
| Undergraduate research Students | 24 |
| High-School Research Students | 5 |
| Student Fellowships and Awards | 15 |

Summary of Teaching

| | |
|--------------------------------------|-----|
| Undergraduate Courses Taught | 5 |
| Graduate Courses Taught | 4 |
| Average Undergraduate Teaching Score | 4.4 |
| Average Graduate Teaching Score | 4.7 |

Mentoring

PostDoc

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|------|---------------|-----|--------------|
| 2021 | Sichuan Huang | ASU | Clam + Robot |
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Ph.D. Students

| | | | |
|-----------|---------------------|--------|---|
| 2021– | Sarina Shahhosseini | ASU | Burrowing Robots |
| 2020– | Xiwei Li | ASU | Mangrove + Scour, <i>Co-advised with Professor Leon van Paassen</i> |
| 2019–2023 | Yi Zhong | ASU | Lizard/Mole +Underground Communication |
| 2018–2023 | Yong Tang | ASU | Seed Awn + Burrowing Mechanism |
| 2018–2020 | Sichuan Huang | ASU | Clam + Burrowing Mechanism |
| 2014–2018 | Junhong Li | UAkron | Bridge Scour |
| 2014–2018 | Hui Tao | UAkron | Internal Erosion |

M.S. Students

| | | | |
|-----------|----------------------|-----|---|
| 2023 | Marilyn Mendoza | ASU | Burrowing Robots |
| 2022–2023 | Manthan Rajendra Pai | ASU | Burrowing Robots |
| 2022–2023 | Dishika Agrawal | ASU | Burrowing Robots |
| 2021–2023 | Md Ragib Shaharear | ASU | Burrowing Robots |
| 2019–2021 | Brian Rudolph | ASU | NA, <i>Co-advised with Professor Claudia Zapata; non-thesis</i> |
| 2019–2021 | Drew Enns | ASU | Mangrove + Scour, <i>Co-advised with Professor Leon van Paassen</i> |

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|-----------|------------------------|--------|--|
| 2019–2020 | Joel Ramirez | ASU | Mangrove + Scour, Co-advised with Professor Leon van Paassen; Student graduated without thesis |
| 2016–2018 | Ganesh Pandey | UAkron | Recycled glass |
| 2015–2018 | Sichuan Huang | UAkron | Burrowing Mechanisms |
| 2015–2017 | Ruotian Bao | UAkron | MICP |
| 2015–2016 | Brendan Patrick Lieske | UAkron | Shale Strength |
| 2015–2016 | Goutham Narayan Mopur | UAkron | Peat Stabilization |
| 2014–2016 | Jie Hu | UAkron | Energy Harvesting |
| 2013–2014 | Candice Fellows | UAkron | Energy Piles, Co-advised with Professor Robert Liang |

Undergraduate Research Students

| | | | |
|-----------|-------------------------------------|--------|---|
| 2023– | Chiran Raj Verma | ASU | Underground Communication, <i>Electrical Engineering</i> |
| 2023– | Maxime Zand | ASU | Burrowing Robots, <i>Mechanical Engineering</i> |
| 2023– | Arin Shaw | ASU | Animal Self-burial, <i>Biology</i> |
| 2023– | Varun Kumar | ASU | Underground Navigation, <i>Computer Science</i> |
| 2021–2023 | Mohan Parekh | ASU | Burrowing Robots |
| 2021 | Ashwin Kumar S | ASU | Burrowing Robots, SURI, from Easwari Engineering College, India |
| 2021 | Harsh Rajkamal | ASU | Burrowing Robots, SURI, from Vellore Institute of Technology, India |
| 2021 | Shesha Sai Tushar Kanchipuram | ASU | Burrowing Robots, SURI, from Biral Institute of Technology and Science, Pilani, India |
| 2021 | Zakary Vladich | ASU | Burrowing Robots, REU, from Northern Arizona University |
| 2021 | Leslie Bautista and Marilyn Mendoza | ASU | Geo-prediction, Co-advised with Professors Ed Kavazanjian and Leon van Paassen |
| 2020–2021 | Chung Ting Wong | ASU | Mangrove + Scour, Co-advised with Professor Leon van Paassen |
| 2020 | Andrew Suarez | ASU | Burrowing Robots, REU, Veteran |
| 2019–2021 | Alexandria Ardenete | ASU | Burrowing Robots, <i>Mechanical Engineering</i> |
| 2019 | Lindsay Lee | ASU | Burrowing Robots |
| 2019 | Amanda Clarke | ASU | Burrowing Robots, VIP program |
| 2019 | Brandon Grimes | ASU | Burrowing Robots, VIP program |
| 2019–2020 | Stephen Dages | ASU | Burrowing Robots, REU, Physics, from West Chester University |
| 2019 | Khem Holden | ASU | Burrowing Robots, REU, Robotics, from University of California, Sant Cruz |
| 2019 | Hyun Choi | ASU | Burrowing Robots, REU, Biology |
| 2019 | Makram Jreissat | ASU | Burrowing Robots |
| 2017 | Nathaniel Green | UAkron | MICP, <i>Biology</i> |
| 2016–2017 | Gwen Baker | UAkron | Recycled glass |
| 2015 | Daniel Gutwein | UAkron | Energy Harvesting |
| 2014–2015 | Matthew Cymbal | UAkron | Underwater Robot |

High School Research Students

| | | | |
|------|-------------------------|------------------------------|----------------------|
| 2021 | Jannette Marti-Subirana | Chandler Preparatory Academy | Burrowing Mechanisms |
| 2017 | Sophia Solganik | Shaker Heights High School | DEM simulation |
| 2017 | Lillian Gonzalez | Home-schooled | DEM simulation |

| | | | |
|------|-------------------|-------------------|-------------|
| 2016 | Nicholas Robinson | Green High School | 3D printing |
| 2016 | Brandon Leap | Kent High School | 3D printing |

Visiting Scholars

| | | | |
|-----------|----------------|---------------------------------|----------------------|
| 2019–2020 | Yunqi Gao | Hohai University | Seismic wave |
| 2016–2018 | Xiangrong Wang | Peking University | MICP |
| 2015–2016 | Haichao Li | Heibei University of Technology | Explosive compaction |

Served as a Thesis Committee Member for

| | | | |
|-----------|--------------------|----------|-----------------------------------|
| 2022–2023 | Saeedeh Naziri | NMSU | NA, <i>Civil Engineering</i> |
| 2021 | Jasmine Victoria | UC Davis | NA, <i>Civil Engineering</i> |
| 2020 | Nana Kwame Ofosu | ASU | NA, <i>Mechanical Engineering</i> |
| 2019– | Thibaut Houette | UAkron | NA, <i>Biology</i> |
| 2019 | Daehyun Kim | ASU | NA, <i>Civil Engineering</i> |
| 2018–2020 | Ariana Rupp | UAkron | NA, <i>Biology</i> |
| 2017 | Baiping Ren | UAkron | NA, <i>Chemical Engineering</i> |
| 2017 | Bimal Thapa | UAkron | NA, <i>Civil Engineering</i> |
| 2017 | Krishna Vamshi | UAkron | NA, <i>Civil Engineering</i> |
| 2016–2017 | Long Chen | UAkron | NA, <i>Chemical Engineering</i> |
| 2016 | Li Zhao | UAkron | NA, <i>Civil Engineering</i> |
| 2016 | Behnam Kiani | UAkron | NA, <i>Civil Engineering</i> |
| 2016 | Tanvir Quasem | UAkron | NA, <i>Civil Engineering</i> |
| 2015 | Hui Wang | UAkron | NA, <i>Civil Engineering</i> |
| 2015 | Ayako Yajima | UAkron | NA, <i>Civil Engineering</i> |
| 2015 | Morteza Vatani | UAkron | NA, <i>Mechanical Engineering</i> |
| 2015 | Ahmed F. Elghriany | UAkron | NA, <i>Civil Engineering</i> |
| 2014 | Abbas Rahimi | UAkron | NA, <i>Mechanical Engineering</i> |
| 2014 | Ali Moradkhany | UAkron | NA, <i>Civil Engineering</i> |

Student Success

| | | |
|------|-------------------------------------|---|
| 2023 | Sarina Shahhosseini | Graduate Fellowship, @SSEBE |
| 2022 | Sarina Shahhosseini | Third Place Outstanding Research Poster Award, @2022 CBBG Mid-Year Meeting |
| 2021 | Alexandra Ardentte | FURI scholarship, @ASU Schools of Engineering |
| 2021 | Leslie Bautista and Marilyn Mendoza | Geo-prediction Competition Finalist, @ASCE Geo-institute |
| 2021 | Yong Tang | Geo-poster Competition Finalist (Top 6), @ASCE Geo-institute |
| 2021 | Yi Zhong | Second-place Poster Award, @ASU Annual SSEBE Graduate Research Symposium |
| 2020 | Alexandra Ardentte | FURI scholarship, @ASU Schools of Engineering |
| 2020 | Sichuan Huang | Second-place Poster Award, @ASU Annual SSEBE Graduate Research Symposium |
| 2019 | Sichuan Huang | Outstanding Volunteer Award, @4th CBBG Annual Meeting |
| 2019 | Sichuan Huang | Third Place Outstanding Research Poster Award, @4th CBBG Annual Meeting |
| 2019 | Sichuan Huang | Third Place in Poster Competition, @ASU Annual SSEBE Graduate Research Symposium |
| 2017 | Ruotian Bao and Junhong Li | Excellent Paper Award, @International Conference on Transportation Infrastructure and Materials |
| 2016 | Junhong Li | Civil Engineering Department Scholarship Awards, @University of Akron |
| 2016 | Sichuan Huang | Software training scholarship, @Itasca Education Partnership (IEP) program |
| 2015 | Hui Tao | First Place Award in Poster Competition, @IACIP |

Outreach Activities

| | | | |
|------|----------------|--|-------------|
| 2022 | Volunteer | ASU Homecoming Block Party Science Booth (CBBG) | ASU |
| 2020 | Volunteer | ASU Engineering Open Door | ASU |
| 2019 | Volunteer | ASU Homecoming Block Party Science Booth (CBBG) | ASU |
| 2019 | Faculty Mentor | REU/RET | ASU CBBG |
| 2019 | Volunteer | CompuPower SRE Lab Tours | ASU |
| 2018 | Volunteer | ASU RECHARGE Conference | ASU |
| 2018 | Volunteer | ASU Engineering Open Door | ASU |
| 2018 | Volunteer | ASU Homecoming Block Party Science Booth (CBBG) | ASU |
| 2017 | Mentor | High School Summer Research Academy in Engineering | UAkron |
| 2017 | Supervisor | Science Olympiad Tournament | Akron, Ohio |
| 2016 | Mentor | High School Summer Research Academy in Engineering | UAkron |
| 2016 | Judge | Northeastern Ohio STEM Science Fair | Kent State |
| 2015 | Speed Mentor | Northeastern Ohio STEM Science Fair | Hudson High |
| 2011 | Junior Mentor | Introduce a Girl into Engineering | CWRU |

Teaching**At ASU**

| | | | |
|--------------------------------|-------------|----|--------|
| CEE-452 Foundation Engineering | 2023 Spring | 14 | 4.24/5 |
| CEE-598 Foundation Engineering | 2023 Spring | 1 | 3.62/5 |
| CEE-494 Bio-inspired Design | 2023 Spring | 14 | 4.78/5 |
| CEE-598 Bio-inspired Design | 2023 Spring | 4 | 5/5 |
| CEE-550 Soil Behavior | 2022 Fall | 6 | 4.5/5 |
| CEE-452 Foundation Engineering | 2022 Spring | 29 | 4.25/5 |
| CEE-598 Foundation Engineering | 2022 Spring | 2 | 4.5/5 |
| CEE-550 Soil Behavior | 2021 Fall | 13 | 4.6/5 |
| CEE-452 Foundation Engineering | 2021 Spring | 49 | 4.52/5 |
| CEE-598 Foundation Engineering | 2021 Spring | 4 | 4.5/5 |
| CEE-494 Bio-inspired Design | 2021 Spring | 14 | 4.8/5 |
| CEE-598 Bio-inspired Design | 2021 Spring | 6 | 5/5 |
| CEE-452 Foundation Engineering | 2020 Spring | 57 | 4.45/5 |
| CEE-598 Foundation Engineering | 2020 Spring | 3 | 5/5 |
| CEE-550 Soil Behavior | 2019 Fall | 13 | 4.82/5 |
| CEE-494 Bio-inspired Design | 2019 Spring | 13 | 4.8/5 |
| CEE-598 Bio-inspired Design | 2019 Spring | 8 | 4.78/5 |
| CEE-550 Soil Behavior | 2018 Fall | 10 | 4.85/5 |

At UAkron

| | | | |
|--|-------------|----|--------|
| 4300-314 Geotechnical Engineering | 2018 Spring | 48 | NA/5 |
| 4300-201 Statics | 2017 Fall | 60 | NA/5 |
| 4300-518 Soil and Rock Exploration | 2017 Fall | 15 | NA/5 |
| 4300-314 Geotechnical Engineering | 2017 Spring | 49 | 3.85/5 |
| 4300-694 Fundamental Behaviors of Soil | 2017 Spring | 7 | 5/5 |
| 4300-201 Statics | 2016 Fall | 47 | 4.51/5 |
| 4300-518 Soil and Rock Exploration | 2016 Fall | 12 | 4.8/5 |
| 4300-314 Geotechnical Engineering | 2016 Spring | 45 | 4.42/5 |
| 4300-694 Fundamental Behaviors of Soil | 2016 Spring | 5 | 4.9/5 |
| 4300-201 Statics | 2015 Fall | 60 | 4.32/5 |
| 4300-518 Soil and Rock Exploration | 2015 Fall | 14 | 4.68/5 |
| 4300-314 Geotechnical Engineering | 2015 Spring | 67 | 4.2/5 |

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|--|-------------|----|--------|
| 4300-694 Fundamental Behaviors of Soil | 2015 Spring | 4 | 5/5 |
| 4300-201 Statics | 2014 Fall | 60 | 4.27/5 |
| 4300-418 Soil and Rock Exploration | 2014 Fall | 2 | 4.43/5 |
| 4300-518 Soil and Rock Exploration | 2014 Fall | 3 | 4.88/5 |
| 4300-314 Geotechnical Engineering | 2014 Spring | 40 | 4/5 |
| 4300-314 Geotechnical Lab | 2014 Spring | 5 | 5/5 |
| 4300-201 Statics | 2013 Fall | 49 | 4.2/5 |

RESEARCH SUPPORT

Summary of Research Support

| | |
|---|--------------|
| Total amount of all pending proposals | \$1,050,000 |
| Total amount of all awards | \$18,720,204 |
| Tao's recognition in all awards | \$2,563,417 |
| Total amount of all awards in which Tao is the PI | \$1,795,476 |
| Tao's total award amount received at ASU | \$2,061,662 |

External Funding

| | | |
|-----------|---|--------------|
| 2020–2025 | PI: Edward Kavazanjian; Co-PI: Zapata, C., Saenz, D., Garcia-Pichel, F., Shock, E., Allenby, B., Rittmann, B., Torres, C., Krajmalnik-Brown, R., Delgado, A., Vivoni, E., Neithalath, N., Cadillo-Quiroz, H., Boyer, T., van Paassen, L., Tao, J., Hamdan, N., Savenye, W., Larson, J.. “Engineering Research Center for Bio-Mediated and Bio-Inspired Geotechnics (CBBG)”. <i>National Science Foundation</i> . Share: 5%. | \$16,444,444 |
| 2019–2021 | PI: Julian Tao; Co-PI: Daniel Aukes, Hamidreza Marvi. “EAGER SitS: Active Self-Boring Robots that Enable Next Generation Dynamic Underground Wireless Sensing Networks: Fusion of Fast Prototyping, Modeling and Learning”. <i>National Science Foundation</i> . Share: 34%. | \$316,000 |
| 2018–2023 | PI: Julian Tao. “CAREER: Integrated Research and Education on Bio-Inspired Burrowing”. <i>National Science Foundation</i> . Share: 100%. | \$532,000 |
| 2018–2018 | PI: Savas Kaya; Co-PI: Julian Tao, Munir Nazzal, Yilmaz Sozer and Ala Abbas. “Roadway Kinetic Energy Capture and Conversion”. <i>The Ohio Department of Transportation</i> . Share: 20%. | \$30,284 |
| 2017–2018 | PI: Qindan Huang; Co-PI: Julian Tao. “Evaluation of Effective Bridge Deck Repair Maintenance Methods”. <i>The Ohio Department of Transportation</i> . Share: 50%. | \$50,000 |
| 2016–2018 | PI: Julian Tao. “Use of Crushed Recycled Glass in the Construction of Local Roadways”. <i>The Ohio Department of Transportation</i> . Share: 100%. | \$144,160 |
| 2016–2017 | PI: Julian Tao. “Evaluation of Post Flooding Shoulder Reconditioning”. <i>The Ohio Department of Transportation</i> . Share: 100%. | \$32,427 |
| 2014–2017 | PI: Julian Tao; Co-PI: Robert Liang. “Performance Comparison of Abutment and Retaining Wall Drainage Systems”. <i>The Ohio Department of Transportation</i> . Share: 80%. | \$285,000 |
| 2014–2015 | PI: Julian Tao; Co-PI: Robert Liang. “Stabilization of Peat Deposits for Roadway Construction and Remediation”. <i>The Ohio Department of Transportation</i> . Share: 80%. | \$65,889 |

Internal Funding

| | | |
|-------|--|-----------|
| 2019– | PI: Julian Tao. “Bio-inspired underground communication”. <i>NSF ERC Center for Bio-mediated and Bio-inspired Geotechnics</i> . Share: 100%. | \$400,000 |
|-------|--|-----------|

| | | |
|-----------|--|-----------|
| 2019– | PI: Leon van Paassen; Co-PI: Julian Tao. “Bio-based Scour Countermeasures”. NSF <i>ERC Center for Bio-mediated and Bio-inspired Geotechnics</i> . Share: 50%. | \$400,000 |
| 2016–2017 | PI: Julian Tao. “Microbial Induced Calcite Precipitation as Erosion and Bridge Scour Countermeasure”. <i>Summer Faculty Fellowship at The University of Akron</i> . Share: 100%. | \$10,000 |
| 2014–2014 | PI: Julian Tao; Co-PI: Jiahua Zhu, Gunjin Yun. “Bio-inspired Piezo-electrochromic Full-field Strain Sensing by Multilayered Nanocomposites”. <i>Biomimicry Research and Innovation Center Initiative Research Incentive Grant at The University of Akron</i> . Share: 34%. | \$10,000 |