

Lu Jing | Ph.D.

Northwestern University, Evanston, IL, USA

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Academic Experience

- **Northwestern University, USA**
Department of Chemical and Biological Engineering 2018.10–present
Laboratory for Complex Systems and Nonlinear Dynamics in Fluids and Granular Materials
Postdoctoral Fellow
- **University of Twente, The Netherlands**
Department of Thermal and Fluid Engineering 2018.4–2018.6
Visiting Scholar at Multiscale Mechanics Group; Alpha Tester for MercuryDPM
- **The University of Hong Kong, Hong Kong, China**
Department of Civil Engineering 2017.4–2018.9
Senior Research Assistant (Postdoctoral Fellow)

Education

- **The University of Hong Kong, Hong Kong, China** **PhD**
Department of Civil Engineering 2013.1–2017.3
- **Tongji University, China** **MEng**
Department of Geotechnical Engineering 2010.9–2012.9
- **Tongji University, China** **BEng**
College of Civil Engineering 2006.9–2010.6

Honors & Awards

- Best Paper Award for Young Researcher, IGS/IMCSRME, 2016
- Most Accessed Article, IJNAMG, 2016
- Excellent Graduate Student Scholarship, Tongji University, 2011

Research Projects

- **Flow driven segregation at the particle level**
National Science Foundation, USA 2019.10–2022.9
GOALI (CBET-1929265)
- **Study on debris flow transport mechanisms based on coupled fluid-particle method**
State Key Laboratory of Geohazard Prevention and Geoenvironment Protection, China 2018.1–2019.12
Open funding (SKLGP2018K024)
- **Experimental and numerical investigation of depositional mechanism of mountainside debris flows**
State Key Laboratory of Hydraulics and Mountain River Engineering, China 2017.1–2018.12
Open funding (SKHL1610)
- **Coupled fluid-particle modeling for debris flows**
Research Grants Council of Hong Kong, Hong Kong, China 2015.1–2017.12
General Research Fund (17203614)

Teaching & Student (Co-)Supervision

- CIVL2106 Advanced Soil Mechanics, Teaching Assistant/Laboratory Instructor, 2014–2017
- MSc project (HKU): Dingchen Zhang, Effects of gravel content and gravel size on the deposit geometries and segregation phenomena of small scale debris flow, 2018
- Final Year Project (HKU): Zirui Zhang, Lab-scale mudflow deposition modeling, 2018

Professional Activities

- Reviewer for Physics of Fluids, *since 2020*
- Reviewer for Journal of Geophysical Research: Earth Surface, *since 2020*
- Reviewer for Granular Matter, *since 2020*
- Reviewer for Computers & Geotechnics, *since 2019*
- Reviewer for Journal of Geophysics and Engineering, *since 2019*
- Assisted in reviews for Journal of Fluid Mechanics, *since 2019*
- Membership of American Physics Society, 2019

Journal Papers

1. **Jing, L.**, Ottino, J. M., Lueptow, R. M., & Umbanhowar, P. B. (2020) Rising and sinking intruders in dense granular flows. *Physical Review Research*, 2(2), 022069.
2. **Jing, L.**, Yang, G. C., Kwok, C. Y., & Sobral, Y. D. (2019) Flow regimes and dynamic similarity of immersed granular collapse: A CFD-DEM investigation. *Powder Technology*, 345, 532–543.
3. **Jing, L.**, Yang, G. C., Kwok, C. Y., & Sobral, Y. D. (2018) Dynamics and scaling laws of underwater granular collapse with varying aspect ratios. *Physical Review E*, 98, 042901.
4. **Jing, L.**, Kwok, C. Y., Leung, Y. F., Zhang, Z., & Dai, L. (2018) Runout scaling and deposit morphology of rapid mudflows. *Journal of Geophysical Research: Earth Surface*, 123(8), 2004–2023.
5. **Jing, L.**, Kwok, C. Y., & Leung, Y. F. (2017) Micromechanical origin of particle size segregation. *Physical Review Letters*, 118, 118001.
6. **Jing, L.**, Kwok, C. Y., Leung, Y. F., & Sobral, Y. D. (2016) Characterization of base roughness for granular chute flows. *Physical Review E*, 94, 052901.
7. **Jing, L.**, Kwok, C. Y., Leung, Y. F., & Sobral, Y. D. (2016) Extended CFD-DEM for free-surface flow with multi-size granules. *International Journal for Numerical and Analytical Methods in Geomechanics*, 40(1), 62–79.
8. Yang, G. C., **Jing, L.**, Kwok, C. Y., & Sobral, Y. D. (2020) Pore-scale simulation of immersed granular collapse: Implications to submarine landslides. *Journal of Geophysical Research: Earth Surface*, 125(1).
9. Weinhart, T., (...), **Jing, L.**, *et al.* (2020) Fast, flexible particle simulations - An introduction to MercuryDPM. *Computer Physics Communications*, 249, 107129.
10. Yang, G. C., **Jing, L.**, Kwok, C. Y., & Sobral, Y. D. (2019) A comprehensive parametric study of LBM-DEM for immersed granular flows. *Computers and Geotechnics*, 114, 103100.
11. Duan, K., Kwok, C. Y., Wu, W., & **Jing, L.** (2018) DEM modeling of hydraulic fracturing in permeable rock: influence of viscosity, injection rate and in-situ states. *Acta Geotechnica*, 13(5), 1187–1202.
12. Meng, Y., Zhu, H. J., Kwok, C. Y., Kuo, M., **Jing, L.**, & Huang, X. (2018) Effect of coefficient of friction on arch network in shearing process under low confinement. *Powder Technology*, 335, 1–10.
13. van der Vaart, K., Thornton, A. R., Johnson, C. G., Weinhart, T., **Jing, L.**, *et al.* (2018) Breaking size-segregation waves and mobility feedback in dense granular avalanches. *Granular Matter*, 20(3), 46.

Conference Papers

1. Yang, G. C., **Jing, L.**, Kwok, C. Y., & Sobral, Y. D. (2019) A question of scaling in immersed granular collapses. In *Second International Conference on the Material Point Method (MPM2019)*. Jan 8–10, 2019, Cambridge, UK.
2. Yang, G. C., **Jing, L.**, Kwok, C. Y., & Sobral, Y. D. (2019) Simulation of pore pressure effects on granular flow dynamics. In *Second JTC1 Workshop on Triggering and Propagation of Rapid Flow-like Landslides*. Dec 3–5, 2018, Hong Kong, China.
3. **Jing, L.**, Yang, G. C., Kwok, C. Y., & Sobral, Y. D. (2018) Coupled fluid-particle modeling of submerged granular collapse. In *micro to MACRO mathematical modelling in soil mechanics*. May 29–31, 2018, Reggio Calabria, Italy.
4. Yang, G. C., **Jing, L.**, Kwok, C. Y., & Sobral, Y. D. (2018) Effects of dilation and contraction on immersed granular column collapse. In *micro to MACRO mathematical modelling in soil mechanics*. May 29–31, 2018, Reggio Calabria, Italy.
5. **Jing, L.**, Kwok, C. Y., Zhao, T. & Zhou J. (2018) Effect of particle size segregation in debris flow deposition. In *GeoShanghai International Conference 2018*. May 27–30, 2018, Shanghai, China.
6. **Jing, L.**, Kwok, C. Y., Leung, Y. F., & Sobral, Y. D. (2017). Effect of geometric base roughness on size segregation. In *EPJ Web of Conferences*: 140, 03056. Jul 3–7, 2017, Montpellier, France.
7. **Jing, L.**, Kwok, C. Y., Leung, Y. F., & Sobral, Y. D. (2017). Basal effect in mono- and bi-disperse chute flows. In *Proceedings of 7th International Conference on Discrete Element Methods (DEM7)*: 445–453. Aug 1–4, 2016, Dalian, China.
8. **Jing, L.**, Kwok, C. Y., Leung, Y. F., & Sobral, Y. D. (2015). Discrete element modelling of grain size segregation in bi-disperse granular flows down chute. In *PARTICLE-BASED METHODS IV Fundamentals and Applications*. Sep 27–30, 2015, Barcelona, Spain.
9. **Jing, L.**, Kwok, C. Y., & Leung, Y. F. (2014). A coupled CFD-DEM model for fluid-particle flows with free surface: Formulation and validation. In *Geomechanics from micro to macro (IS-Cambridge 2014)*: 485–490. Sep 1–4, 2014, Cambridge, UK.

Invited Talks & Lectures

1. Discrete element method and its fluid coupling. Department of Geotechnical Engineering, Tongji University, Jun 1/ Jun 8, 2020, Shanghai, China. (Online lectures to graduates)
2. Segregation, basal effect, and roles of ambient fluid in geophysical flows. Multiscale Mechanics Group, University of Twente, Apr 24, 2018, Enschede, The Netherlands.
3. Continuum and discrete modeling of debris flow-related phenomena. Department of Geotechnical Engineering, Tongji University, Apr 25, 2017, Shanghai, China.

Presentations

1. Predicting size and density segregation in granular flows. *Blending & Segregation Forum (BSF2019)*, Aug 5–8, 2019, West Lafayette, USA.
2. Driving forces in size and density segregation. *2019 APS March Meeting*, Mar 4–8, 2019, Boston, USA.
3. Feedback effect of base roughness on particle size segregation in bi-disperse granular avalanche. *2017 AGU Fall Meeting*, Dec 11–15, 2017, New Orleans, USA.
4. Characterization of geometric base roughness in mono- and bi-disperse chute flows. *Powders & Grains 2017*, Jul 3–7, 2017, Montpellier, France.
5. Experimental and numerical study of depositional mechanism of mudflows. *International Geotechnics Symposium cum International Meeting of CSRME 14th Biennial National Congress (IGS/IMCSRME)*, Dec 14–17, 2016, Hong Kong, China.
6. Basal effect in mono- and bi-disperse chute flows. *7th International Conference on Discrete Element Methods (DEM7)*, Aug 1–4, 2016, Dalian, China.

7. Characterization of base roughness. *Engineering Mechanics Institute Conference 2016 (EMI2016)*, May 23–25, 2016, Nashville, USA.
8. Grain size segregation in chute flows. *IV International Conference on Particle-Based Methods (PARTICLES 2015)*, Sep 27–30, 2015, Barcelona, Spain.
9. Extended CFD-DEM for fluid-particle flows with free surface. *International Symposium on Geomechanics from micro to macro (IS-Cambridge 2014)*, Sep 1–4, 2014, Cambridge, UK.