

CURRICULUM VITAE

- 1. Name, Position, Department, University** Weilin Deng
Postdoctoral Research Associate
Solid Mechanics Group
Brown University
- 2. Office address** 184 Hope Street,
Providence, RI 02912
- 3. Education**
- Brown University, RI, USA August 2019
Ph.D. in Solid Mechanics
Thesis title: *Mechanics of Contact and Adhesion of Rough Surfaces*
Advisors: Prof. Haneesh Kesari
GPA: 4.0/4.0
- Tianjin University, Tianjin, China January 2013
M.S. in Solid Mechanics
Thesis title: *Deformation analysis of carbon nanotube fibers by using micro-Raman spectroscopy*
Advisors: Prof. Yilan Kang
GPA: 3.91/4.0
- Tianjin University, Tianjin, China July 2010
B.S. in Engineering Mechanics
GPA: 3.86/4.0
- 4. Professional appointment(s)** Brown University, RI, USA September 2019–present
Postdoctoral Research Associate
Advisor: Prof. Haneesh Kesari
- 5. Completed publications**
- a. Refereed journal articles**
- Total number of articles: 11
Number of citations of all journal articles: 182 (as of March 12, 2020)
- [1] **Weilin Deng** and Haneesh Kesari. “Depth-dependent hysteresis in adhesive elastic contacts at large surface roughness”. In: *Scientific Reports* 9.1 (2019), p. 1639.
- [2] **Weilin Deng** and Haneesh Kesari. “Effect of machine stiffness on interpreting contact force–indentation depth curves in adhesive elastic contact experiments”. In: *Journal of the Mechanics and Physics of Solids* 131 (2019), pp. 404–423.
- [3] **Weilin Deng** and Haneesh Kesari. “Molecular statics study of depth-dependent hysteresis in nano-scale adhesive elastic contacts”. In: *Modelling and Simulation in Materials Science and Engineering* 25.5 (2017), p. 055002.
- [4] **Weilin Deng**, Wei Qiu, Qiu Li, Yilan Kang, Jiangang Guo, Yali Li, and Shuaishuai Han. “Multi-scale experiments and interfacial mechanical modeling of carbon nanotube fiber”. In: *Experimental Mechanics* 54.1 (2014), pp. 3–10.

- [5] Qiu Liu, Wei Qiu, **Weilin Deng**, and Yilan Kang. “On the application of in-situ micro-Raman spectroscopy in study of material mechanical properties of carbon nanotube fiber and film”. In: *Journal of Experimental Mechanics* 29.3 (2014), 257–264 (in Chinese).
- [6] Wei Qiu, Shilei Li, **Weilin Deng**, Di Gao, and Yilan Kang. “Strain sensor of carbon nanotubes in microscale: From model to metrology”. In: *The Scientific World Journal* 2014 (2014), Article ID 406154.
- [7] Shilei Li, Wei Qiu, Yilan Kang, Zhenkun Lei, Qiu Li, **Weilin Deng**, and Di Gao. “Study on the CNT Sensor for strain measurement and its control method of Raman polarization”. In: *Spectroscopy and Spectral Analysis* 33.5 (2013), pp. 1244–1248.
- [8] Wei Qiu, Qiu Li, Zhenkun Lei, Qinghua Qin, **Weilin Deng**, and Yilan Kang. “The use of a carbon nanotube sensor for measuring strain by micro-Raman spectroscopy”. In: *Carbon* 53 (2013), pp. 161–168.
- [9] Xia Xiao, Yilan Kang, **Weilin Deng**, Xiaolei Li, Wei Qiu, and Xiaohua Tan. “Digital moiré measurement of large deformation field for bionic skin soft material”. In: *Journal of Experimental Mechanics* 28.1 (2013), 1–8 (in Chinese).
- [10] **Weilin Deng**, Wei Qiu, Yongzhe Jiao, Qingchuan Zhang, and Yilan Kang. “Residual stress measurement and analysis in multilayer film Si-substrate structure by micro-Raman spectroscopy technique”. In: *Journal of Experimental Mechanics* 27.1 (2012), 1–9 (in Chinese).
- [11] Qiu Li, Yilan Kang, Wei Qiu, Yali Li, Ganyun Huang, Jiangang Guo, **Weilin Deng**, and Xiaohua Zhong. “Deformation mechanisms of carbon nanotube fibres under tensile loading by *in situ* Raman spectroscopy analysis”. In: *Nanotechnology* 22.22 (2011), p. 225704.

b. Conference abstracts

1. **Weilin Deng** and Hanessh Kesari. “Finite element analysis of surface roughness enhanced adhesion in adhesive elastic contacts.” *The Adhesion Society 42nd Annual Meeting*. Hilton Head Island, SC, USA, February 2019.
2. Wei Qiu, Yilan Kang and **Weilin Deng**. “Nanotube strain sensors by micro-Raman spectroscopy.” *Proceedings of the 16th Annual Conference of Hong Kong Society of Theoretical and Applied Mechanics*. Hongkong, China, March 2012.
3. Wei Qiu, Yilan Kang, Zhenkun Lei, Qiu Li and **Weilin Deng**. “Carbon nanotube strain sensor by using micro-Raman spectroscopy.” *XXII International Conference on Raman Spectroscopy*. Boston, MA, USA, August 2010.

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c. Talks

- [1] “Surface roughness enhanced adhesion in elastic contact.” *56th Annual Technical Meeting of the Society of Engineering Science*, Washington University in St. Louis, St. Louis, MO, USA. Oct. 2019.
- [2] “Is surface roughness Good or Bad for adhesion?” *9th Annual NEW.Mech Conference*, Brown University, Providence, RI, USA. Sept. 2018.
- [3] “Surface roughness dependent adhesion: Finite element modelling and analysis.” *ASME’s International Mechanical Engineering Congress and Exposition (IMECE) 2018*, Pittsburgh, PA, USA. Nov. 2018.

- [4] "Surface roughness dependent adhesion: Finite element modelling and analysis." *18th U.S. National Congress for Theoretical and Applied Mechanics–Jointly Organized with the Chinese Society of Theoretical and Applied Mechanics*, Chicago, IL, USA. June 2018.
- [5] "Theoretical modeling of depth dependent hysteresis in adhesive elastic contact." *54th Annual Technical Meeting of the Society of Engineering Science*, Northeastern University, Boston, MA, USA. July 2017.
- [6] "Depth dependent hysteresis in adhesive elastic contacts (poster)." *7th Annual NEW.Mech Conference*, Harvard University, Cambridge, MA, USA. Oct. 2016.
- [7] "Depth dependent hysteresis in adhesive elastic contacts for large surface roughness." *53th Annual Technical Meeting of the Society of Engineering Science*, University of Maryland, College Park, MD, USA. Oct. 2016.

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d. Work(s) to be submitted

- [1] **Weilin Deng** and Haneesh Kesari. "A body force based approach to model adhesive elastic contact and its application in studying depth-dependent hysteresis and adhesion enhancement by surface roughness." We plan on submitting this manuscript to *Journal of the Mechanics and Physics of Solids*.
- [2] **Weilin Deng** and Haneesh Kesari. "Angle-independent optimal peel-off force of elastic thin film peeling from wavy surface." We plan on submitting this manuscript to *Journal of the Mechanics and Physics of Solids*.
- [3] **Weilin Deng** and Haneesh Kesari. "Effective bending stiffness of multilayered structures with cylindrical orthotropy." We plan on submitting this manuscript to *International Journal of Solids and Structures*.

- 6. Academic honors**
- *Outstanding Master Thesis Award of Tianjin* 2013
Awarded by Tianjin Education Bureau
 - *Outstanding Graduates Awards of Tianjin University* 2013, 2010
Awarded by Tianjin University
 - *National Graduate Scholarship* 2013
Highest scholarship awarded by Chinese government to graduates
 - *National Undergraduate Scholarship* 2009, 2008
Highest scholarship awarded by Chinese government to undergraduates

7. Professional Services

a. Editorial board

- Frontiers in Materials (Review Editor appointed by Chief Editor)

b. Journal reviewer

Total number of reviews: 22

- Journal of Applied Mechanics
- Engineering Fracture Mechanics
- Applied Physics Letter
- Tribology International
- The Journal of Adhesion
- Journal of Adhesion Science and Technology
- Fatigue & Fracture of Engineering Materials & Structures

- IEEE Transactions on Industrial Electronics
- Applied Surface Science
- Micromachines
- Frontiers in Materials
- The Electrochemical Society Journals

8. Teaching experience

Brown University

a. Teaching assistant

- ENGN 2020: Math. Methods in Eng. & Phys. II Fall 2014
- ENGN 1370: Advanced engineering mechanics Spring 2018
- ENGN 1370: Advanced engineering mechanics Spring 2019

9. References

- Prof. Haneesh Kesari, Haneesh_Kesari@brown.edu
- Prof. Pradeep Guduru, Pradeep_Guduru@brown.edu
- Prof. Kyung-Suk Kim, Kyung-Suk_Kim@brown.edu
- Prof. Vikas Srivastava, Vikas_Srivastava@brown.edu