Lüwen Zhou

Resume for Postdoctoral application

Institute of mechanics, CAS
No.15 Beisihuanxi Road, Beijing, China
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China Citizen

Education

2006–2010 **Bachelor in Physics**, *College of Physical and Technology, Dalian University*.

2011–2017 **PhD in Engineering Mechanics**, *Institute of mechanics, Chinese Academy of Sciences*.

PhD thesis

Title *Theoretical modeling and numerical analyses of cellular responses to physiological mechanics microenvironment* (In Chinese)

Supervisors Moubin Liu and Shouqin Lü

Experience

MATLAB and Mathematical Modeling Teaching

2008-2017 **I have taught courses on MATLAB programming and mathematical models for undergraduates and graduate students many times**.

Textbook Writing

2015 **Chapters 2-5 of "A Guide to Mathematical Modeling Competition for College Students" (in Chinese)**, *Publishing Hose of Electronics Industry, China*.

Traffic Simulation (If necessary, I can provide more details and MATLAB codes)

2009 **Nagel-Schreckenberg Model Simulation of Traffic in The Toll Plaza**.

2010 **Intelligent Driver Model Simulation of Traffic in The Roundabout**.

2016 **Intelligent Driver Model Simulation of Traffic in The 3D park**.

Computer skills

Programming Matlab, Fortran, Python, C++

OS Linux, Windows

Referees

Moubin Liu **Ph.D., Professor**, *Department of Mechanics and Engineering Science, College of Engineering, Peking University*, No.60 Yannan Yuan, Peking University. Beijing, 100871, China, Office Tel: +86-10-82529039.
Email: mbliu@pku.edu.cn

Mian Long **Ph.D., Professor**, *Institute of Mechanics, Chinese Academy of Sciences*, North 4th Ring Road, Beijing, 100871, China, Office Tel: +86-10-82544131.
Email: mlong@imech.ac.cn

Selected Awards and Honors

2006–2009 **Outstanding Student of Dalian University**.

2007–2009 **Innovation Scholarship of Dalian University**.

2008 **National Business Plan Competition of Undergraduates**, *Second Prize*.

2009 **Northeast of China Mathematical Contest in Modeling**, *First Prize*.

2009 **Dalian Advanced Mathematics Competition of Undergraduates**, *First Prize*.

2009 **Municipal Government Scholarship**, *Frist Class*.

2010 **COMAP Mathematical Contest in Modeling**, *Meritorious Winner*.

2010 **Top Ten Innovative Students of Dalian University**.

2013, 2016 **Outstanding Student of University of Chinese Academy of Sciences**.

Publications

[1] C. Zhang, **L. Zhou**, F. Zhang, D. Lü, N. Li, L. Zheng, Y. Xu, Z. Li, S. Sun, and M. Long, "Mechanical remodeling of normally sized mammalian cells under a gravity vector," *The FASEB Journal*, vol. 31, no. 2, pp. 802–813, 2017.

[2] D. Lü, **L. Zhou**, and M. Long, "Biomechanics of stem cells," *Advances in Mechanics*, vol. 47, pp. 534–585, 2017.

[3] **L. Zhou**, Y. Zhang, X. Deng, and M. Liu, "Dissipative particle dynamics simulation of flow through periodic arrays of circular micropillar," *Applied Mathematics and Mechanics*, vol. 37, no. 11, pp. 1431–1440, 2016.

[4] **L. Zhou**, Y. Zhang, X. Deng, and M. Liu, "DPD simulation of the movement and deformation of bioconcave cells," *International Journal of Computational Methods*, vol. 13, no. 04, p. 1641003, 2016.

[5] M. Liu, G. Liu, **L. Zhou**, and J. Chang, "Dissipative particle dynamics (DPD): an overview and recent developments," *Archives of Computational Methods in Engineering*, vol. 22, no. 4, pp. 529–556, 2015.

[6] **L. Zhou**, M. Liu, and J. Chang, "Movement and evolution of macromolecules in a grooved micro-channel," *Interaction and multiscale mechanics*, vol. 6, no. 2, pp. 157–172, 2013.

[7] **L. Zhou**, M. Liu, and J. Chang, "Dissipative particle dynamics simulations of macromolecules in micro-channels," *Acta Polymerica Sinica*, no. 7, pp. 720–727, 2012.

[8] **L. Zhou**, C. Zhang, F. Zhang, S. Lü, S. Sun, D. Lü, and M. Long, "Theoretical modeling of mechanical homeostasis of a mammalian cells under gravity-directed vector," *Biomechanics and Modeling in Mechanobiology*, 2017. (Submitted).

[9] S. Feng, **L. Zhou (co-first author)**, Y. Zhang, S. Lü, and M. Long, "Rapid cytoskeletal remodeling in neutrophil chemotaxis: A theoretical analysis," *Biophysical Journal*, 2017. (Submitted).

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Chalmers University of Technology

May 9, 2017

Dear Sir or Madam,

From website I learned about your need for a postdoctoral fellow in real-world autonomous vehicle behaviour and simulation of Cyber-physical Systems in Chalmers University of Technology. I am very interested in this project, and believe that my background on programming skills and experience in traffic simulation are appropriate for the position.

I recently will graduate from the University of Chinese Academy of Sciences with a Ph.D in Engineering Mechanics, from where I have studied the passive and active responses of cells under the stimulation of typical chemistry, multiple mechanics by theoretical analyses and numerical simulations. It provides the basis for understanding the mechanism of cell mechano-chemical coupling, and the dynamic response of cells to the specific chemical, mechanical stimulation. My thesis work not only involves mathematical modeling, but also requires a lot of programming.

In addition to my thesis work, I am very interested in mathematical models and computer simulations, especially in relation to traffic. I was so excited when I see vehicles that simulated is moving forward on my computer window. Although I have not received formal training in traffic simulation, the interest prompted me to learn a variety of traffic flow models, such as cellular automata and intelligent driver model. By writing MATLAB programs, I used these models to study several specific problems, such as **using Nagel-Schreckenberg cellular automata model to determine the optimal number of tollbooths to deploy in a barrier-toll plaza**, and **using Intelligent Driver Model to determine the optimal parking location in the 3D park**.

Thank you very much for your time and kind consideration. Please contact me if you would like any further information. I look forward to hearing from you.

Yours faithfully,

Lüwen Zhou

Attached: curriculum vitae