last updated Aug 18, 2025

CHENZHUO LI

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Education

Apr 2021 - Present — Doctoral Student in Mechanics
École Polytechnique Fédérale de Lausanne — *Lausanne, Switzerland*
- Thesis title: Stability of low-velocity cracks near an engineered inclusion
- Advisor: Prof. John Kolinski [website]

Sep 2014 - Jun 2018 — B.S. in Flying Vehicle Power Engineering
Beihang University — *Beijing, China*
- GPA: 3.7/4.0

Sep 2017 – Feb 2018 — Undergraduate International Exchange Program
Polytechnic University of Milan — *Milan, Italy*

Research Experience

Apr 2021 - Present — Ph.D. candidate in Mechanics
École Polytechnique Fédérale de Lausanne — *Lausanne, Switzerland*
- Fracture mechanics, soft materials, 3D microscopy, particle tracking
- Advisor: Prof. John Kolinski [website]

Oct 2018 – Jan 2021 — Research Assistant
Beihang University — *Beijing, China*
- 2D & 3D digital image correlation
- Principle Investigator: Prof. Bing Pan [website]

Jun 2018 – Sep 2018 — Experiment Assistant
Center of Space Exploration (Chongqing University) — *Beijing, China*

Sep 2017 – Jun 2018 — Undergraduate researcher
Beihang University — *Beijing, China*
- Finite element analysis on porous materials
- Principle Investigator: Prof. Zaoyang Guo [website]

May 2015 – Oct 2016 — Team Leader and APP developer
Beihang University — *Beijing, China*

Publications [Google scholar link]

* Equal contribution, † Corresponding author

13. T. Yuan, C. Li, J. Kolinski, E. Amstad†, "Electrostatically reinforced double network granular hydrogels", ***Advanced Science***, 12, 2412566 (2025) [link]
12. C. Li, D. Zubko, D. Delespaul, J. Kolinski†, "3D characterization of kinematic fields and poroelastic swelling near the tip of a propagating crack in a hydrogel", ***International Journal of Fracture***, online, 1–15 (2024) [link]
11. X. Wei, C. Li, C. McCarthy, J. Kolinski†, "Complexity of crack front geometry enhances toughness of brittle solids", ***Nature Physics***, 20, 1–6 (2024) [link]
10. T. Benkley*, C. Li*, J. Kolinski†, "Estimation of the Deformation Gradient Tensor by Particle Tracking Near a Free Boundary with Quantified Error", ***Experimental Mechanics***, 63(7), 1255–1270 (2023) [link]
9. C. Li*, X. Wei*, M. Wang, M. Adda-Bedia, J. Kolinski†, "Crack tip kinematics reveal the process zone structure in brittle hydrogel fracture", ***Journal of the Mechanics and Physics of Solids***, 178,

105330 (2023) [link]

8. K. Zhu*, C. Li*, B. Pan†, "Rapid and Repeatable Fluorescent Speckle Pattern Fabrication Using a Handheld Inkjet Printer", ***Experimental Mechanics***, 62(4), 627–637 (2022) [link]
7. X. Zhang*, C. Li*, L. Yu, B. Pan†, "Heatwave distortion correction using an improved reference sample compensation method and multispectral digital image correlation", ***Applied Optics***, 60(13), 3716–3723 (2021) [link]
6. B. Dong, C. Li, B. Pan†, "Fluorescent 2D Digital Image Correlation With Built-in Coaxial Illumination for Deformation Measurement in Space-constrained Scenarios", ***Experimental Mechanics***, 61, 653–661 (2021) [link]
5. B. Fu*, C. Li*, B. Dong†, P. Ou†, "Enhanced Digital Gradient Sensing Using Backlight Digital Speckle Target", ***Sensors***, 20(22), 6557 (2020) [link]
4. C. Li, H. Luo, B. Pan†, "High-throughput measurement of coefficient of thermal expansion using a high-resolution digital single-lens reflex camera and digital image correlation", ***Review of Scientific Instruments***, 91(10), 105106 (2020) [link]
3. B. Dong*, C. Li*, B. Pan†, "Fluorescent digital image correlation applied for macroscale deformation measurement", ***Applied Physics Letters***, 117(4), 044101 (2020) [link]
2. B. Dong*, C. Li*, B. Pan†, "Ultrasensitive video extensometer using single-camera dual field-of-view telecentric imaging system", ***Optics letters***, 44(18), 4499–4502 (2019) [Link]
1. C. Li*, B. Dong*, B. Pan†, "A flexible and easy-to-implement single-camera microscopic 3D digital image correlation technique", ***Measurement Science and Technology***, 30(8), 085002 (2019) [Link]

Conference Presentations

Jul 2025 Characterization of local poroelastic swelling near the tip of a propagating crack in a hydrogel
*The 12th European Solid Mechanics Conference (**ESMC**)* *Lyon, France*

Sep 2024 Near crack tip deformation fields reveal the structure of the process zone in brittle hydrogels
*The 26th International Congress in Theoretical and Applied Mechanics (**ICTAM**)*
Daegu, South Korea

Aug 2024 Near crack tip deformation fields reveal the structure of the process zone in brittle hydrogels (invited)
*The **SES** (Society of Engineering) Annual Technical Meeting* *Hangzhou, China*

May 2024 Crack tip kinematics reveal the process zone structure in brittle hydrogel fracture
*The 19th European Mechanics of Materials Conferences (**EMMC**)* *Madrid, Spain*

Mar 2024 Evolution of a planar crack perturbed by a rigid inclusion (poster)
*The 19th International Conference on Deformation, Yield and Fracture of Polymers (**DYFP**)*
Kerkrade, Netherlands

Jul 2022 High-resolution quasistatic near-crack-tip deformation fields in brittle hydrogels
*The 11th European Solid Mechanics Conference (**ESMC**)* *Galway, Ireland*

Oct 2020 New exploration and application of fluorescent digital image correlation
*The 11th International Digital Image Correlation Society Conference (**iDICs**)* *Virtual*

Jan 2020 High-throughput CTE determination of bulk materials based on DSLR and DIC
The 26th Annual Conference of Beijing Society of Theoretical and Applied Mechanics
Beijing, China

Awards and Honors

2020, 2019, 2018 First-Class Academic Scholarship

2019 Freshman Merit Scholarship

2018	CSC Scholarship for Undergraduate Exchange Program
2016	Third Prize for the 26th "Feng Ru Cup" Competition
2015 - 2016	Student Research Training Grant

Teaching

Fall 2022 - 2024 Teaching assistant in Experimental Methods in Engineering Mechanics
École Polytechnique Fédérale de Lausanne *Lausanne, Switzerland*

Spring 2022 - 2024 Teaching assistant in Continuum Mechanics
École Polytechnique Fédérale de Lausanne *Lausanne, Switzerland*

Skills

Programming: MATLAB, Python, imageJ macro

Technique: 3D Particle Tracking, Digital Image Correlation (DIC), Finite Element Analysis

Laboratory: Scanning Electron Microscope (SEM), Laser Scanning Confocal Microscope (LSCM), Laser Sheet Fluorescence Microscope (LSFM), Cleanroom, Nanoscribe

Languages: Chinese (native), English (proficient)

Service

Journal reviewer: Experimental Mechanics, Optics Letters, Optics Express, Applied Optics