

# WENBO KOU

Xidian University ◇ Xi'an, 710126, P.R.China

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## EDUCATION

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**Xidian University**, Xi'an, P.R.China

**Bachelor** of Mathematics and Applied Mathematics

*Aug, 2018 – Jul, 2022*

- **GPA: 3.9/4.0**

- **Selected Courses:** Advanced Algebra; Abstract Algebra; Mathematical Analysis; Numerical Analysis; Functional Analysis; Probability Theory; Mathematical Statistics; Stochastic Process; Deep learning in Computer vision; Topology

**University of California, Berkeley**, Berkeley, CA

**Visiting student**

*Jan, 2021 – Dec, 2021*

- **GPA: 4.0/4.0**

- **Selected Courses:** STAT154 Introduction to Statistical Learning; EECS127 Optimization Models in Engineering; CS170 Efficient Algorithms and Intractable Problems; CS61B Data Structures; CS61A Structure and Interpretation of Computer Programs

## PUBLICATIONS & MANUSCRIPTS

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- 1 Hao Dong, **Wenbo Kou**, Junyan Han, Jiale Linghua, Mingqiang Zou, Cui, Junzhi. A mixed wavelet-learning method of predicting macroscopic effective heat transfer conductivities of braided composite materials. Submitted to *Communications in Computational Physics*. Under review.
- 2 **Wenbo Kou**, Dong Hao, Zou Min-Qiang, Han Jun-Yan, Jia Xi-Xi. Hybrid wavelet-based learning method of predicting effective thermal conductivities of hybrid composite materials. *ACTA PHYSICA SINICA*, 2021, 70(3): 030701.
- 3 Hao Dong, Yufeng Nie, Junzhi Cui, **Wenbo Kou**, Mingqiang Zou, Junyan Han, Xiaofei Guan, Zihao Yang. A wavelet-based learning approach assisted multiscale analysis for estimating the effective thermal conductivities of particulate composites. *Computer Methods in Applied Mechanics and Engineering*, 2021, 374: 113591.

## RESEARCH EXPERIENCE

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**Xidian University**, Xi'an, P.R.China

*Jan, 2021 – June, 2021*

Research Assistant, Advisor: Prof. [Tom Luan](#)

**Project: Poor sitting posture detection device**

- Employed the extended Kalman filter method to process sensor data and established a physical model of sitting posture using quaternion;
- Proposed a novel approach for sitting posture detection by using two inertial sensors, which can resolve the ambiguity between poor sitting posture and good sitting posture.

**Xidian University**, Xi'an, P.R.China

*Sep, 2019 – Dec, 2020*

Research Assistant, Advisors: Profs. [Hao Dong](#)

**Project: A wavelet-based learning approach assisted multiscale analysis for estimating the effective thermal conductivities of composite materials**

- Applied a wavelet-based learning approach in the prediction of effective thermal conductivities of particulate composites task to reduce storage, computational cost and noise which can be further extended to predict effective mechanical properties of particulate composites.
- Proposed a multi-scale model that integrates the advantages of multi-scale modeling, wavelet transform, artificial neural network (ANN) and asymptotic homogenization method (AHM) for establishment of the material database with high-dimensional and high-complexity mapping.
- Performed numerical experiments on periodic and random particulate composite models to illustrate the outstanding performance of the integrated method.

## PROGRAMMING SKILLS

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**Languages:** Python, Java, C, R, Markdown, HTML

**Softwares&Tools:** MATLAB, Tensorflow, Pytorch, Git, L<sup>A</sup>T<sub>E</sub>X