

Ruoqi Dang

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EDUCATION BACKGROUND

Nanyang Technological University, Singapore 2021.08 - Present

Ph.D. Candidate, Mechanical and Aerospace Engineering

Advisor: National Academy, Prof. Huajian Gao

- ◆ Full-time funded by: Singapore Agency for Science, Technology and Research (A*STAR).
- ◆ Research Topic: Multi-scale modeling unveil the mechanics of nano-scale metal.

Dartmouth College, USA 2019.06 – 2019.09

Visiting Scholar, Computer Science Engineering

Advisor: Prof. Temiloluwa Prioleau

Xi'an Jiaotong University, China 2016.09 – 2020.06

Bachelor's degree in engineering, Engineering Mechanics

- ◆ GPA: 3.9/4.3, Rank: Top 1

PROJECTS

WorldQuant Challenge **Consultant** **Singapore** 2023.10 - Present

- ◆ Participated in the Challenge competition and won the gold medal independently, registered as a consultant in Singapore and continued to explore Alphas.
- ◆ Mined over 20 factors with a Sharpe ratio greater than 2 from the perspectives of scale, value, momentum, profitability, growth, etc.

Dingsong Quant Technology **Data Science Intern** **China** 2019.03 – 2019.06

- ◆ Created and updated MySQL database from JoinQuant stock trading platform.
- ◆ Classified and predicted the stock price by using AdaBoost algorithm with multi-factor analysis, and wrote the research report.

Harbour Education **Academic Mentor** **Online** 2020.03 – 2023.05

- ◆ Taught the following projects: Machine learning foundation, Semiconductor materials and engineering, Atomic simulation of materials, Nanoscience, Nonlinear programming foundation and Introduction to structural dynamics; the cooperative professors were all from QS TOP 50 Universities.
- ◆ Gave lectures on computer science, Python programming skills, mathematics in weekly sessions and reviewed students' progress.
- ◆ Won the Excellent Academic Mentor twice.

AWARDS

- ◆ Gold Level in WorldQuant Challenge (Top 1%, 2023)
- ◆ A*STAR MERIT AWARD in Singapore (Singapore Government Top Scholarships for International PhD Students, Top 1%, 2021)
- ◆ National Outstanding Undergraduate Thesis of Engineering Mechanics (Top 1%, 2020)
- ◆ Outstanding Undergraduate Thesis in Xi'an Jiaotong University (Top 1%, 2020)
- ◆ Outstanding Student in Xi'an Jiaotong University (Top 1%, 2019)
- ◆ First-class Scholarship of Xi'an Jiaotong University (Top 1%, 2017)
- ◆ Outstanding Athletes of Shaanxi Go Championship (Top 1%, 2016)
- ◆ Runner-up in Shaanxi Go Championship (Top 1%, 2016)

PUBLICATIONS

- ◆ Wenxin Zhang, **Ruoqi Dang**, Huajian Gao*, Greer Julia*, Suppressed Size Effects in Hierarchical Microstructures Enabled by Nanoscale Additive Manufacturing, Nano Letter, 2023 (Submitted)
- ◆ **Ruoqi Dang**, Wenshan Yu*. "Standard Deviation Effect of Average Structure Descriptor on Grain Boundary Energy Prediction." *Materials* 16.3 (2023): 1197.
- ◆ Mo Zhao, **Ruoqi Dang**, Lin Jin, *et al.* Structures and energies of $\Sigma 3$ asymmetric tilt grain boundaries in silicon[J]. *Journal of Materials Research*, 2021, 36(10): 2025-2036.
- ◆ Kang Gu, **Ruoqi Dang**, Temiloluwa Prioleau*. "Neural physiological model: A simple module for blood glucose prediction." 2020 42nd annual international conference of the IEEE engineering in medicine & biology society (*embc*). IEEE, 2020.
- ◆ Rui Zhao, **Ruoqi Dang**, Yinliang Zhao*. "A neural network go rating model considering winning rate." *Proceedings of the 2019 3rd International Conference on Computer Science and Artificial Intelligence*. 2019.

ACADEMIC BACKGROUND

Ph.D. Student, Gao Group

Nanyang Technological University, Singapore

2021.08 – Present

Advisor: National Academy, Prof. Huajian Gao

- ◆ Sub Topic 1: Machine Learning Potential to Predict Hydrogen Embrittlement Effects in High-entropy Alloys
- ◆ Sub Topic 2: Molecular Dynamics Study on Detwinning Mechanism Affected by High Quasi-hydrostatic Pressure

Research Assistant, State Key Laboratory for Strength and Vibration of Mechanical Structures

Xi'an Jiaotong University, China

2020.06 – 2021.07

Advisor: Prof. Wenshan Yu

Topic: Prediction of Metal Grain Boundary Properties Using Machine Learning Methods

- ◆ Using molecular dynamics (MD), analyzed 659 grain boundary (GB) models of Cu, Al and Ni.
- ◆ Proposed a new method to quantify the GB structure, by which GB energy can be well predicted.
- ◆ Using PCA, reduce the dimension of high-dimensional data of modified radial distribution function (RDF) of atoms.
- ◆ Built Linear Regression/ GBR/ RNN models to predict GB energy and selected Gradient Boosting as the model with the best performance (MAE shows 27.14, 18.23 and 19.08 respectively).

Research Assistant, DartNets Laboratory

Dartmouth College, USA

Jun. 2019 – Sep. 2019

Advisor: Prof. Temiloluwa Prioleau

Topic: Predicting the Future Blood Glucose Level Using Machine Learning Methods

- ◆ Analyzed 34 diabetic patients' clinical records, and find the significant correlation between the standard deviation of carbohydrate intake and blood glucose level (Pearson correlation score 0.637), which can predict blood glucose level using these clinical data.
- ◆ Built SVR/ ARIMA/ LSTM models to predict blood glucose value in the next 30 minutes and selected LSTM as the model with the best performance (RMSE shows 1.24, 1.89, and 1.07 respectively).
- ◆ Established SVC to classify blood glucose level and find that 2 hours of the prediction window could get the highest accuracy (93%).

PROFESSIONAL SKILLS

- ◆ English: TOFEL 109, GRE334+3.5
- ◆ Machine Learning Packages: Tensorflow, Pytorch, Keras, Scikit-learn
- ◆ Programming Skills: Python, C/C++
- ◆ System: Linux, Windows