

Zihao Ding

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Educational Background

2013.08-2017.08	Shanghai Jiaotong University	Bachelor	GPA:3.74/4.3	Rank:11/135
2016.08-2018.05	Carnegie Mellon University	Master	GPA:3.95/4.0	
2018.08-2022.05	Carnegie Mellon University	Ph.D Candidate		
(expected)	Major: Materials Science and Engineering	2 nd Master: Machine Learning		

Skills

- Skills: Materials characterization (SEM, TEM, EBSD, EDS, AFM, XRD, Nanoindentation etc.), microstructure analysis, electrochemical test, organic coating, surface processing
- Programming: Python, C/C++, Tensorflow, Matlab, High performance computing
- Simulation: Ansys, COMSOL
- Others: LaTeX, Mathematica, Origin, Photoshop

Research & Projects

Department of Materials Science and Engineering, Carnegie Mellon University

Scanning electron microscope pattern indexing using machine learning Aug.2018-Now

- Collect and organize large data set of EBSD patterns
- Use convolutional neural network (CNN) to precisely index patterns

Construction of Poly-Dopamine Coating Layer on Low-Carbon Steel for Corrosion Resistance Oct.2016-May.2018

- Preparation of poly-dopamine coating layer and composite corrosion resistance layer on low-carbon steel
- Test electrochemical performance and durability of corrosion resistance layer

State Key Lab of Metal Matrix Composites, School of Materials Science and Engineering, Shanghai Jiaotong University

Arc Physics during TOPTIG welding Oct.2013-Apr.2014

- Use high-speed photography to record and study TOPTIG welding
- Learn how to control an industrial robot to complete welding process

The construction of nano composite structure on the surface of biomedical TC4 titanium alloy Sep.2014-Sep.2015

- Use Friction Stir Process(FSP) to produce improved titanium alloy(TC4+TiO₂)
- Optimize FSP process parameters

The research of biocompatibility and corrosion resistance of nano TiO₂ composite structure Sep.2015-Sep.2016

- Evaluate biocompatibility and corrosion resistance of titanium alloy
- Emulate mechanical properties of titanium alloy as implant in human body

Internships

XCEL Fence Inc.

Mechanical Engineer May.2018-Aug.2018

- Design self-assembly and durable fence
- Product & Marketing Research

Shanghai Institute of Ceramics, Chinese Academy of Sciences

The Preparation of High-Efficiency Perovskite Solar Cells Jun.2016-Sep.2016

- Prepare high-efficiency perovskite solar cells
- Test the efficiency of the solar cell and optimize preparation parameters

Papers and Conferences

- Polydopamine Nanomembranes as Adhesion Layers for Improved Corrosion Resistance in Low Carbon Steel, **Z Ding**, F Fatollahi-Fard, I S Kwon, P C Pistorius, C J Bettinger, *Adv. Eng. Mater.*, 2018, in press.
- Effects of Friction Stir Processing on the phase transformation and microstructure of TiO₂ compounded Ti-6Al-4V alloy, **Z Ding**, C Zhang, L Xie, L Zhang, W Lu, *Metall. Trans. A*, 2016, 47(12): 675–679.
- Deformation mechanisms in surface nano-crystallization of low elastic modulus Ti6Al4V/Zn composite during severe plastic deformation, Y Lv, **Z Ding (co-first author)**, J Xue, G Sha, E Lu, L Zhang, W Lu, C Su, L Wang, *Scr. Mater.*, 2018, in press
- Electrochemical and In Vitro Behavior of the Nanosized Composites of Ti-6Al-4V and TiO₂ Fabricated by Friction Stir Process, C Zhang, **Z Ding (co-first author)**, L Xie, L Zhang, L Wu, Y Fu, L Wang, W Lu, *Appl. Surf. Sci.*, 2017, 423: 331-339.
- Microstructure Evolution and Superelasticity of Layer-Like NiTiNb Porous Metal Prepared by Eutectic Reaction, L Wang, L Xie, L Zhang, **Z Ding**, Y Lv, W Zhang, W Lu, D Zhang, *Acta Mater*, 2018, 143: 214-26.
- Microstructures, Mechanical and Biological Properties of a Novel Ti-6V-4V/Zn Surface Nanocomposite Prepared by FSP, C Zhu, Y Lv, C Qian, **Z Ding**, T Jiao, X Gu, L Wang, F Zhang, *Int. J. Nanomedicine*, 2018, 13: 1881-1898.
- Development and Application of Biomedical Titanium Alloys, Chapter 7: Surface Modification of Biomedical Titanium Alloys, **Z Ding**, L Wang, C Zhang, L Zhang, Bentham Science, 2018.
- Influence of friction stir processing on the surface modification of the titanium alloy, L Wang, Y Wang, **Z Ding**, *Advances in Engineering Research*, 2015, Nova Science Publisher, Volume 10: 53-76.
- Collaborative Conference on 3D and Materials Research (CC3DMR) 2016, **Invited Speaker**
Topic: Microstructural characteristics and mechanical properties of biomedical titanium alloy during friction stir processing
- Influence of friction stir processing on the microhardness and wear properties of beta titanium alloy, J Huang, J Qu, **Z Ding**, C Zhang, Q Meng, *Hot Working Tech.*, 2015, 14: 64-67.

Extracurricular Activities

- Vice Chairman of Volunteer Department Sep.2013-Aug.2014
- Chairman of Sunshine Project Sep.2014-Aug.2017
- Head of Office in Science and Technology Association Sep.2014-Aug.2017
- Treasurer of The Chinese-English Third Space in Carnegie Mellon Univeristy Aug.2017-Now

Honors

- 2018.5 Outstanding Graduate Scholarship, Carnegie Mellon University
- 2017 Spring Dean's List in College of Engineering, Carnegie Mellon University
- 2016 Fall Dean's List in College of Engineering, Carnegie Mellon University
- 2016.6 Fellowship of Shanghai Institute of Ceramics, Chinese Academy of Sciences
- 2015.9 Third Prize, Shanghai Advanced Materials Innovation Competition
- 2015.9 Academic Excellence Scholarship of Shanghai Jiao Tong University
- 2015.6 Guanghai Scholarship
- 2014.10 Outstanding Individual in Social Practice
- 2014.9 Outstanding Student Leader of Shanghai Jiao Tong University
- 2014.9 Academic Excellence Scholarship of Shanghai Jiao Tong University