Siyu Lou

(+86)18817560446 | lousiyushanghai@gmail.com | Shanghai, China

Education

Shanghai Jiao Tong University (SJTU) Shanghai,China
Master of Materials Engineering *Sep. 2015 – Mar. 2018*

Institut polytechnique de Grenoble (Grenoble INP) Grenoble, France
Master of Functional Advanced Material Engineering (Dual Degree Program) *Sep. 2014 – Jul. 2016*

Shanghai Jiao Tong University (SJTU) Shanghai, China
Bachelor of Materials Science and Engineering *Sep. 2011 – Jul. 2015*

Research Experience

SJTU, Cross Media Language Intelligence Lab Shanghai, China
Research Assistant *Jan. 2021 – Present*

Project: Cross-Modal Audio-Text Retrieval

- Built audio-text retrieval system based on natural language descriptions, achieved state-of-the-art retrieval performance
- Implemented various pretrained models (*e.g.* PANNs, word2vec) and aggregation technique (*e.g.* LSTM, VLAD)
- Conducted complete analysis on influential factors (feature representations, model architectures) in audio-text retrieval
- Paper accepted by 2022 ICASSP

Project: Classification of Abnormal/Normal Heart Sound Record

- Investigated various static audio features and designed effective convolutional neural network classifier
- Achieved 98% accuracy on the benchmark dataset and 10% relative enhancement on private collected dataset
- Collaborated with hospital and industry for real-world implementation
- Initiated and explored the explainability of heart sound classification neural network

Grenoble INP, CNRS, SIMaP Grenoble, France
Research Intern *Feb.2016 – Jul.2016*

Project: Fast in Situ 3D Nanoimaging on Remelting Light Metal Alloys

- Performed image analysis: including image reconstruction and segmentation of the liquid droplet forming within Al-Cu alloy
- Conducted 3D quantitative analysis, determined heterogeneous nucleation mechanism during remelting

Grenoble INP, CNRS, LMGP Grenoble, France
Research Intern *May.2015 – Jul.2015*

Project: Characterization of Bone Scaffold Microstructure and of The Effects of Scaffold Architecture on Bone Growth in Vivo

- Wrote ImageJ Macro to identify micropores on bone scaffold with various size and morphology on micro-CT images
- Prepared samples for histological characterization, analysed the enhancement mechanism of micropores on bone generation

Grenoble INP, Phelma Grenoble, France
Master Student *Sep.2014 – Feb.2016*

Project: Multiple Cracking of Coatings on Soft Substrates

- Simulated crack initiation and propagation in the brittle thin film on the soft substrate using Abaqus

Project: Architecture Design Optimization for Cooling by Transpiration

- Studied sophisticated material selection process, determined candidates for the annular combustion chamber
- Carried out a comparison study among various porous structures, optimized parameters to achieve four different objectives

Professional Experience

ExxonMobil Chemical Shanghai
Market Analyst | Sales Engineer *Apr.2018 – Jan.2021*

- Conducted industry and competitive analysis to support management team on business strategy development
- Led go-to-market strategy for new products, scaled up sales in short notice

Miscellaneous

Languages: English (Proficient), German (Conversational), French (Conversational, DELF B1)
Computer skills: Python, C++, Linux, Windows OS, Latex, Microsoft Office, ImageJ
Deep learning frameworks: Pytorch, CNN, DNN, RNN, LSTM
Online courses: Data Structures and Algorithms (Coursera), Digital Signal Processing (Coursera), Machine Learning (video recording at National Taiwan University)
Supplement offline courses @ Shanghai Jiao Tong University: Intelligent Speech Technology (Spring, 2021), Natural Language Processing (Fall, 2021), Academic Writing, Ethics and Integrity in Computer Science (Fall, 2021)

Awards

2011-2014 Shanghai Jiao Tong University Outstanding Scholarship

Publications

- **S. Lou**, X. Xu, M. Wu, and K. Yu, "Audio-text retrieval in context," *accepted by 2022 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*.
- **S. Lou**, X. Shan, and X. Zhao, "Composition and thickness optimization of anti-cmas layer on air plasma sprayed thermal barrier coatings," *Surface Technology* (in Chinese, EI Compendex), 2018.
- J. Villanova, R. Daudin, P. Lhuissier, D. Jauffres, **S. Lou**, C. Martin, S. Labouré, R. Tucoulou, G. Martinez-Criado, and L. Salvo, "Fast in situ 3d nanoimaging: A new tool for dynamic characterization in materials science," *Materials Today* (IF 31.04), 2017.
- L. Rustom, T. Boudou, **S. Lou**, I. Paintrand, B. Nemke, Y. Lu, M. Markel, C. Picart, and A. Wagoner Johnson, "Micropore-induced capillarity enhances bone distribution in vivo in biphasic calcium phosphate scaffolds," *Acta biomaterialia* (IF 8.947), 2016.