# 李文动 Wendong Li

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## Personal Statement

I'm an undergraduate student studying software engineering at Beijing University of Posts and Telecommunications since 2019 and I expect to graduate in June, 2023. I have a solid foundation in math, programming, computer science, and deep learning. My previous research experience mainly focuses on solving computer vision and knowledge graph enhanced information retrieval problems. I am interested in studying machine learning in general.

## Research Experience

### Research internship | National University of Singapore | Apr. 2022 - Present

I am currently a research assistant at the NExT++ Centre, School of Computing. Supervised by Prof. Tat-Seng Chua and Postdoctoral Research Fellow Yunshan Ma, my research project focuses on Information Retrieval with Knowledge Graph. I am applying machine learning techniques, specifically contrastive learning objective, on solving temporal knowledge graph completion problems.  We currently preparing a conference manuscript to share our work.

### Research internship | Tsinghua University | Aug. 2021 - Apr. 2022

I did a research internship at the Institute of HCI and Media Integration, Department of Computer Science and Technology, and was supervised by Prof. Yongjin Liu. My research project focused on computer vision problems. Specifically, I worked on generating natural image from sketch and natural image from sketch using generative methods like GAN and diffusion model.

## Project Experience

**AI Sheet Music Helper | Project in University's Innovation Competition**

Inspired by Gardner et al. (2022) on multi-task multitrack music transcription, we implement an auto music transcription system. We also added Demucs Music Source Separation System from Meta AI as a module to separate sound track from mixed music. By combining PyTorch with Flask as the backend and JavaScript as the frontend, we elaborated a user-friendly web application for common instrument players. They can cover any music or songs using the music scores generated by our transcription system. They can also obtain the background music without vocal track or any specific instrument track produced by our source separation module.

**Cross-Platform Chat App based on LibLinphone/Netty lib | Course Project**

We elaborated a chat app using one of the two third-party libraries LibLinphone (using SIP as application layer protocol) and Netty as our communication backend. We used Java for server and provided Android client and desktop client based on JavaFX.

**Pneumonia Risk Status Platform for University | Course Project**

Using React components and ECharts plugin, we provided a visualization platform for manager in the university to know about the current risk level of pneumonia on campus. We used MyBatis to connect with MySQL and visualized the information in the database using simple statistic method and ECharts plugin.

## Skill

· C/C++/C#/Python/Java SE/EE

· English: TOEFL 102

· Deep Learning

· School Band Drummer

## Education

**Software Engineering | Beijing University of Posts and Telecommunications | Sep. 2019 – Present**

· Grade: 87/100

· Computer Science Courses: Computer Organization and Architecture, Operating System Principles, Computer Graphics, Algorithms and Data Structures, Compiling Theory, Computer Networks, Database Theory.

· Mathematical Courses: Advanced Mathematics, Linear Algebra, Discrete Mathematics, Possibility Theory, Numerical Analysis.