

Zhiyu Alex Zhang

✉ zhiyuzha@umich.edu | 🌐 Personal Website | 🐙 GitHub | 🎵 Music Portfolio | 📍 Ann Arbor, MI

EDUCATION

University of Michigan

Ann Arbor, MI

*B.S. in Computer Science (Dual Degree); **Current GPA: 3.96/4.00***

Jan 2022 – May 2025 (Expected)

*B.A. with Music Concentration (Dual Degree); **Current GPA: 3.96/4.00***

Sep 2023 – May 2025 (Expected)

Wake Forest University

Winston-Salem, NC

Cumulative GPA: 4.00/4.00

Sep 2020 – Dec 2021

RESEARCH EXPERIENCE

Visualizing Telematic Music Performance

Ann Arbor, MI

Undergraduate Research Assistant at the University of Michigan

Jan 2023 – Present

- Collaborating with Prof. Michael Gurevich, Prof. John Granzow, and Prof. Brent Gillespie on a project that explores methods of incorporating musicians' visual communication of effort, gesture, and movement into telematic performance without conventional video transmission.
- Conducted literature review and designed performer-audience studies that examine the effectiveness of human-computer interaction in this project's avatar system through audience surveys, performer interviews, and public performances.
- Captured Electromyography (EMG) data from performers' body movements with Qualysis, generated Automatic Marker Identification (AIM) models, and processed data transfer between embedded and host computers.

Kangxi, Amiot, and “Improvements” to Instruments for Chinese Rituals

Winston-Salem, NC

Undergraduate Research Assistant at Wake Forest University

Oct 2021 – Present

- Working with Prof. Stewart Carter on a project to identify the sources of Father Amiot's manuscripts on Emperor Kangxi's reforms of Chinese musical instruments.
- Translated and critically analyzed detailed characteristics of 15 Chinese instruments from the 18th-century music treatises *Lülü Zhengyi Houbian* and *Lülü Zhengyi Xiabian*, rendering complex classical Chinese texts into modern English.
- Compiled two documents, one enabling quick search capabilities for Chinese instruments in *Lülü Zhengyi Houbian* and *Lülü Zhengyi Xiabian*, and the other collating the characteristics of musical instruments in the scope of the project, significantly improving research productivity and data accessibility.

WORK EXPERIENCE

Shanghai SoundBug Technology Co., Ltd

Shanghai, China

Software Engineer Intern

Jun 2023 – Aug 2023

- Developed a 5-band Equalizer AU/VST plugin using C++ and the JUCE framework as an upgrade to the current stock Equalizer plugin in SoundBug, an educational Digital Audio Workstation (DAW).
- Designed an elegant user interface featuring low cut, low shelf, parametric, high shelf, and high cut filters accompanied by a Fast Fourier Transform (FFT) spectrum analyzer and bypass buttons to enhance user control over mixing and mastering.
- Implemented a user-friendly control system for adjusting filter parameters, including frequency cutoff, Q factor, filter gain, and filter slope.

MicroPort NaviBot Co., Ltd

Remote

R&D Intern

Jun 2022 – Aug 2022

- Prototyped an open library of knee, hip, and ankle implants for the SkyWalker/Honghu robot-assisted surgical system to perform Total Knee Arthroplasty (TKA), Total Hip Arthroplasty (THA), and Total Ankle Replacement (TAR) with prostheses produced by any manufacturer, augmenting the system's commercial value.
- Conceived 15+ UI designs and the wireframe for a middle-fidelity prototype using Axure RP, offering surgeons an intuitive view of the functionalities in the upgraded open library.
- Spearheaded a proposal to automate anatomy-specific CT/fMRI image segmentation and landmark registration, leveraging the potential of machine learning to improve system efficiency by 50 times.

Freelance Translator

Shanghai, China

Jan 2018 – Present

- Shanghai Education Press House (Apr 2023 - Present): Currently engaged in the translation of “Assessment in Music Education” by M. Fauley.
- Shanghai Conservatory of Music Press (Jan 2018 - Jun 2018): Contributed to the Chinese translation of “The Choral World: A Chronological, Historical, and Geographical Approach” by C. Ljunggren.
- Delivered precise translations, conducted detailed proofreading, and ensured adherence to strict formatting guidelines in various literary projects.

SELECTED WORKS

Publications

Zhang, Z. 2019. *Alex's Musical Picture Book*. East China Normal University Press. (ISBN: 978-7-5675-9374-9)

Translations

Ljunggren, C. 2018. *The Choral World: A Chronological, Historical, and Geographical Approach*. Translated from English by Wang, Y. and **Z. Zhang**. Shanghai Conservatory of Music Press. (ISBN: 978-7-5566-0171-4)

Invited Talks and Presentations

June 2023. The 52nd Annual Meeting of the American Musical Instrument Society (AMIS). “Kangxi, Father Amiot, and ‘Improvements’ to Ritual Instruments in Eighteenth-Century China” (Presentation)

Media Production

“Grandpa Cao and His Angels”. 2018. Produced by Yu, D. and **Z. Zhang** for the Music Education in China (MEiC) series at the Shanghai Conservatory of Music Press. A documentary episode raising awareness about Autism Spectrum Disorder (ASD), it reached an estimated audience of 1,000,000 viewers on Shanghai’s public transportation system.

AWARDS & HONORS

The William E. Gribbon Memorial Award for Student Travel at the American Musical Instrumental Society (AMIS): 2023 (\$2600)

James B. Angell Scholar at the University of Michigan: Winter 2022

University Honors at the University of Michigan: Winter 2022, Fall 2022, Winter 2023

Dean’s List at Wake Forest University: Fall 2021, Spring 2021, Fall 2020

SKILLS

Programming Languages: C++, Python, Faust, Max, Processing, JavaScript, HTML, CSS, R, SQLite

Libraries and Frameworks: PyTorch, Numpy, Scikit-Learn, JUCE, Flask, React

Developer Tools and Softwares: Git, Unity, Logic Pro X, FL Studio, Axure RP

RELEVANT COURSEWORK

Computer Science Courses: Machine Learning for Natural Language Processing, Computer Vision, Information Retrieval, Web Systems, Accessible Computing, Data Structures and Algorithms, Linear Algebra

Music Courses: Digital Fabrication for Acoustics, Computer Music, Introduction to Electronic Music Production, Introduction to Musical Analysis

REFERENCES

Prof. John Granzow, Associate Professor of Music

University of Michigan

+1 (734) 764-3751, jgranzow@umich.edu

Prof. Stewart Carter, Professor of Music

Wake Forest University

+1 (336) 758-5106, carter@wfu.edu

Prof. Danhong Yu, Professor of Music Education
Shanghai Conservatory of Music
+86 139-1872-6918, yudanhong@shcmusic.edu.cn