Linzan Ye

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EDUCATION

University of Rochester **Rochester, New York**
Bachelor of Arts with Dual Degrees in Data Science and Music *Aug. 2017 – May 2021*
Minor in Economics
- Cumulative GPA: 3.92 out of 4.0
- Dean's List (all eligible semesters)

SELECTED PROJECTS

Prompted Pop Song Generation Using Diffusion Transformers *Aug. 2024 – current*
- Collaborated with a team of graduates to achieve controllable generation of melodies and accompaniments conditioned on lyrics, melodies, and textual prompts;
- Implemented ControlNet and incorporated U-shaped diffusion transformers for conditional generations of MIDI tracks. Working on adding RLHF to fine-tune melody generation and improve cohesion between lyric and melody;

Masked Expressiveness – Conditioned Prediction of Piano Velocity with BERT *Jul. 2024 – Oct.2024*
- Independently trained a Bidirectional Encoder Representations from Transformers (BERT) model to predict expressive piano dynamics, given a masked expressive context, achieving 87.9% accuracy within ±2 velocity bin range across 32 velocity bins. Designed a sequential generation algorithm and obtained more musically coherent outputs;
- Extended an offline score-to-MIDI alignment algorithm to develop a user-friendly demo, where the model reconstructs complete expressive performances from performed fragments of the composition (e.g., melody line) alongside the score, bridging the gap between users' expressive intentions and the technical execution on the piano;

Chord Sense – Stylistic Chord Progression Generation *Mar. 2024 – Jun. 2024*
- Independently trained two Generative Pre-trained Transformers (GPTs) for forward and backward Harte-style chord symbol generation, achieving a HITS@3 score of 91.9%. Proposed and quantified the performance of three automatic fine-tuning strategies for generating stylistic chord progressions (CPs) with little need for additional datasets;
- Achieved musically convincing generations of stylistic CPs across diverse harmonic contexts, enabling musicians to sharpen their intuition for harmonies by fine-tuning, sharing and interacting with their models;

EXPERIENCE

Shenzhen Mango Future Technology Co., Ltd. **Shenzhen, China**
Algorithm Engineer *Feb. 2022 – Aug. 2024*
- Refactored and extended a real-time musical score synthesis and playback system in C++, enhancing extensibility for custom virtual instruments and audio effect plugins. Fine-tuned synthesis quality by implementing dynamic range control, room impulse response, and designing custom sound fonts to improve piano/string synthesis, as well as developing a solfege singing system and deploying deep learning models for expressive piano dynamic prediction;
- Led the development of a MIDI band accompaniment generation project. Coded a chord recognition algorithm using SVMs, achieving a weighted accuracy of 89% across 54 classes. Implemented the synthesis logic and coordinated both client and server-side deployment, working with musicians for data preparation, accompaniment design, and evaluation. The functionality had 3000 daily active users;

EXTRACURRICULAR ACTIVITIES

University of Rochester **Rochester, NY**
Chamber Orchestra – Soloist *Sep. 2019 – Feb. 2020*
- The only pianist winner of the University of Rochester River Campus 2019/2020 Concerto Competition. Received agreed praise from all professional judges;
- Performed John Field's Piano Concerto No.2 mvt.1 with the University of Rochester Chamber Orchestra (URCO) at the Strong Auditorium;

University of Rochester **Rochester, NY**
Chamber Orchestra – Principal Clarinet *Sep. 2017 – May 2020*
- Performed actively in school concerts and at various venues in the Rochester area (e.g., Keuka College and Two Saints Church) to enhance the art in local community;

SKILLS

- Programming languages/Frameworks: C++, Python, Java, JavaScript, PyTorch, React, PostgreSQL;
- Languages: Chinese(native), Japanese(advanced);