

Amir Lankarani

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EDUCATION

Columbia University

M.S. in Computer Science, GPA: 4.05/4.00

New York, NY

May 2023

- Relevant Courses: Speech Recognition, Advanced Sound, Spoken LP, NLP, AI, Computer Vision, OS

Columbia University

B.A. in Biological Sciences, GPA: 3.94/4.00

New York, NY

May 2020

- Relevant Courses: Digital Music, Ear Training, East Asian Music, Western Music, Python for Engineers

TECHNICAL SKILLS

Languages: Python, C, C++, C#, Bash, JavaScript, Java

Audio Tools: Ableton, Kaldi, Essentia, Pure Data, Web Audio

Other Tools: PyTorch, PostgreSQL, Git, Google Cloud, D3.js, P5.js

Software: UE5, Unity, Photoshop, Premiere, Illustrator, Tableau

PROJECTS

“On Off the Air:” an Audio-Visual Exploration of the TV Show

Mar 2023 - Jun 2023

- Created a real-time audio-visual distortion method to enhance accessibility of streamed videos for deaf individuals
- Extracted ML classification data and employed PCA to identify meaningful associations between audio-video frames
- Utilized stacked and flattened frames to generate barcodes, enabling K-means clustering and color prevalence analysis

Lyric-Based Source Separation

Sep 2022 - May 2023

- Modified Kaldi speech tools to facilitate batch extraction of posteriorgrams and lyrical alignments from mixed music
- Constructed an innovative PyTorch model using posteriorgrams, alignments, and spectral data for RNN processing

Music Library Remixer

July 2022 - Dec 2022

- Developed a program to decompose each song in a music library into organized sets of different stems
- Automated the creation of new songs by layering random stems after matching their pitch, tempo, and onset positions

Music Library Database and Web Interface

Jan 2023 - May 2023

- Constructed a PostgreSQL DB to store music library data, allowing concurrent use by DJs, producers, and music fans
- Designed a user-friendly Flask website enabling intuitive access to advanced music queries through simple commands

PROFESSIONAL EXPERIENCE

Columbia Microbiome Core

New York, NY

Research Technician

Sep 2020 – Sep 2021

- Designed sequencing projects, conducted computational analyses, and prepared reports for diverse client researchers
- Identified novel traits in the outbreak of Staph spread by needles in NYC, improving infection treatment for clinicians

Hospital for Special Surgery

New York, NY

Columbia Navab Fellow

May 2019 – Jul 2019

- Automated the counting and analysis of osteoclasts from images of bone cell cultures using classical vision techniques
- Conducted automated analyses of mice models, uncovering a novel link between purine metabolism and osteoporosis

Columbia Medical Center

New York, NY

Research Assistant

Feb 2017 – Feb 2018

- Found external trackers for metastasis & created a visual model for bladder cell lineage by quantitative analyses
- Studied the usage of weight monitoring over time as a method for identifying bone metastases in mice models

EXTRACURRICULARS

President and Audio Engineer at CU Records

Jan 2017 - May 2020

- Managed Columbia’s only accessible record studio, training hundreds of students in audio engineering and production
- Recorded and mixed audio projects for students, and organized a variety of free concerts, mixtapes, and music videos

Other: Music producer, radio host, Iranian Students Association president, resident advisor, Games for Change volunteer