Arun Asthagiri

Neuroscientist, Violinist, Technologist

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EDUCATION

Graduate

Northeastern University, PhD candidate, Interdisciplinary Design and Media, CAMD **2024 - Present**
GPA: 4.0
Advisor: Dr. Psyche Loui

Undergraduate

New England Conservatory, Bachelor of Music **2020 - 2024**
GPA: 3.99
Major in Violin Performance; Minor in Music Theory

Tufts University, Cross-registered **2022 - 2023**
GPA: 4.0
Computer Science

Northeastern University, Cross-registered **2023 - 2024**
GPA: 4.0
Computer Science, Music Technology, Music and Brain Research

MUSIC IMAGING AND NEURAL DYNAMICS (MIND) LAB RESEARCH EXPERIENCE **2022-PRESENT**

Advisor: Dr. Psyche Loui, Director, MIND Lab, Northeastern University

Neural Correlates of Live Versus Recorded Performance

- **Designed and conducted EEG experiment investigating live performance in a concert hall**
- Fostered collaboration between Northeastern and New England Conservatory
- **Awarded an Entrepreneurial Musicianship Grant from NEC** to enable this research
- Collaborated with **world-renowned violinist, Joshua Brown**
- Conducted **EEG preprocessing and data analysis**
- Presented results at **Cognitive Neuroscience Society** (**CNS**) conference (March 2024)
- **Talk** at the **Society of Music Perception and Cognition** conference (June 2024)
- **Journal article, in review, Social Cognitive and Affective Neuroscience** (**2025**)

Music for Health and Cognition

- Led **EEG analysis** on projects that leveraged musical rhythm for (1) **sustained attention** and (2) **healthy cognition in older adults at risk for Alzheimer's Disease**
- **Partnership with industry collaborators: SONY, Oscillo Biosciences**
- **Data Blitz talk at Cognitive Neuroscience Society** (**CNS**) conference (March 2025)
- **Talk at New England Sequencing and Timing** (**NEST**) conference (Spring 2025)

Music and Physiology

- Utilized industry state of the art physiology equipment, partnering with NeuroScouting LLC
- Led team in physiology data collection for human participants
- **Investigated how musical chills affect heart rate, heart rate variability, skin conductance**
- **Used deep-learning models to relate acoustics to changes in physiology**
- **Presented results at NeuroMusic conference** (November, 2024)

Brain-Body Interaction

- **Designed study on interoception in musical reward** (2025)
    - **Collaboration with Dr. Karen Quigley**, a leading researcher in physiology and interoception
- **Implemented real-time sonification system for heart beats using ECG**
- Data collection and analysis (exp. Spring, 2025)

IMMERSIVE LIVE PERFORMANCE PROJECT 2022-2023

Advisors: Dr. Victor Zappi, CAMD, Northeastern University
Dr. Ianni Davide, Music Theory, New England Conservatory

- Developed immersive technology that adapts to live acoustic performance to transform the concert hall into a living space
- Demo and recording in Pierce Hall, New England Conservatory
- Designed generative textural life-based animations
- Implemented motion tracking from gyrometer to interpret movement
- Collaborated with cellist Zac Fung and Peter Benson
- Trained machine-learning model to interpret gesture during performance
- **Programmer and performer for interactive performance of "Darshan" by Reena Esmail using algorithmic generation of real-time visuals in concert hall** (Spring, 2024)

SELECT ACADEMIC COURSES

NORTHEASTERN (**PhD**)

- Natural Language Processing (CS 6120) Fall 2025
- Cognitive Science Seminar (PSYC 5110) Fall 2025
- Seminar in Clinical Neuroscience (PSYC 7250) Spring 2024
  - *Final project:* **whole-brain fMRI connectivity analysis with machine learning** uncovers neural predictors of depression during ketamine use and music listening
- Research Methods in Design and Media (INAM 7001) Spring 2024
- Affective Computing (CS 6130) Spring 2024
  - *Final project:* developed **live visualization of audience synchrony** and collected data during live performance in concert hall

NORTHEASTERN (**Undergraduate Cross-Registration**)

- Music and the Brain Research (MUSC 4510) Spring 2024
- Reinforcement Learning (CS 4810) Spring 2024
- Computer Music Fundamentals (MUST 2431) Fall 2023
- Mathematics of Data Models (CS 2810) Spring 2022

TUFTS (**Cross-Registration**)

- Algorithms (CS 160) Fall 2023
- Data Structures (CS 015) Spring 2022
- Introduction to Computer Science (CS 011) Fall 2022

NEW ENGLAND CONSERVATORY (**Bachelor Of Music**)

- Music Creation and Performance Technology (THYU 427T) Spring 2023
- Computer Assisted Analysis and Composition (THYU 424T) Fall 2023

Advanced Music Theory

- **Music Theory Capstone: Reinforcement Learning for Theory-Driven Music Generation** Spring 2024
- Performer's Intro to Schenkerian Analysis (THYU 327) Fall 2022
- Extended Tonality (THYU 307) Spring 2022
- Music of Morton Feldman and James Tenney (THYU 429T) Fall 2020

SKILLS: Human Subjects Research, Neuroimaging Methods, Advanced Data Analysis, Academic Writing, Machine Learning, Violin Performance, Music Theory, Music Composition
PROGRAMMING LANGUAGES: Python, MATLAB, R, Java (Processing), JavaScript (p5js), Max, TouchDesigner, C++

MUSIC PERFORMANCE AND TEACHING

Teaching Experience

- **Chamber Music Faculty, New England Conservatory Prep** 2023-Present
- Chamber Music Substitute Faculty, New England Conservatory Prep 2022
- Private Lessons 2022-2023
- TA for 3 sections of Music Literacy and Musicianship – Prof. Joseph Bozich 2022

Notable Performances and Awards

- Recipient of Honors Quartet Distinction at NEC 2023
- Full Solo Recital, Pierce Hall, NEC 2023
- Borromeo Seminar Quartet Program + Jordan Hall Performance 2022
- Winner, A Far Cry Fellowship Competition — Performance with A Far Cry in Jordan Hall 2022
- First Prize and Overall Gold Prize, International Chamber Music Competition – Chamber Music Foundation of New England 2020
- Co-concertmaster of the Youth Philharmonic Orchestra under Maestro David Loebel 2019-2020
- NEC Prep Chamber Music Gala in Jordan Hall: 2020
    - World Premier of "Rauschenberg Interview" by Michael Finnissy, composed for this group
- 1st prize, Massachusetts Bay State Competition 2018
- Soloist, Mendelssohn Concerto, Lexington High School Chamber Orchestra 2018
- Winner of Lexington High School Concerto Competition 2017
- Soloist, "Danse Macabre" by Saint-Saens, Lexington High School Symphony Orchestra 2017
- 2nd prize, Massachusetts Bay State Competition 2015
- Carnegie Hall Performance, South Pasadena Strings Orchestra 2009

Masterclasses

- American String Quartet (Madeline Island Fellowship Quartet Program) 2022
- "Stefan's Sessions" - Masterclass with Stefan Jackiw 2020
- Augustin Hadelich Masterclass, Sounding Point Academy 2020
- Julianne Lee, Boston Symphony Orchestra 2020
- Merz Trio - Resident Trio at New England Conservatory 2019

Violin Mentors and Advisors

- Nicholas Kitchen, Faculty - New England Conservatory 2020-2024
- Robyn Bollinger, Faculty - New England Conservatory Prep 2020
- Magdalena Richter, Strings Department Chair-New England Conservatory Prep 2012-2020
- Anait Arutunian, Faculty - New England Conservatory Prep 2011-2012
- Susan Pascale, South Pasadena Strings, California 2007-2011

Composition and Theory Teachers

- Rodney Lister, Composition Department Chair - New England Conservatory Prep 2017-2020
- Dan Shaud, Performing Arts Department Chair - Rivers Conservatory 2014-2015

Summer Festivals

- Fellowship - Madeline Island Chamber Music 2022
    - Instruction from Jupiter, American, Arianna, Harlem String Quartets + Mark Steinberg, Jonathan Swartz
- Sounding Point Academy 2020
    - Studio of Stefan Jackiw, Concert Artist and Soloist
- Aspen International Music Festival 2019
    - Studio of Masao Kawasaki, Juilliard School
- Bowdoin International Festival 2018, 2021

- Studios of Itzhak Rashkovsky, Itamar Zorman, Kurt Sassmanshaus, Robin Scott
- Chamber coaches from Jupiter and Ying Quartets: Meg Freivogel, David Ying, Janet Ying, Nelson Lee

Notable Orchestra/Large Ensemble Experience

- Symphony, Philharmonic Orchestra, NEC 2021-2022
  - Beethoven Symphony No. 5 - concertmaster
- Composers Ensemble, NEC Prep 2018-2020
- Youth Philharmonic Orchestra NEC Prep, co-concertmaster (2018-2020)
  - Bach - Stokowski Toccata and Fugue - concertmaster
  - Tchaikovsky Symphony No. 6 - concertmaster
  - Shostakovich Symphony No. 5, Beethoven Symphony No. 5

COMMUNITY ENGAGEMENT AND MULTICULTURAL EXPRESSION

- Numerous community performances in local nursing homes (NEC and MIND Lab) 2022-2024
- South Asian Student Union Member (NEC) 2024
- Founder and leader of Chamber Music Program at Lexington High School 2018
- Composer for the musical "The Karmic Forces" - Bridging of Eastern and Western Philosophy 2016
- Arrangement of Jain religious hymns for classical instrumentation and performance 2016
- Violinist, "The Jungle Book" at International Festival of Children's Theatre, Japan 2016
- Composition award for music in "The Jungle Book" - Massachusetts Educational Theater Guild 2016

NOTABLE PERFORMED REPERTOIRE

Solo Repertoire:

Tchaikovsky: Violin Concerto in D Major
Sibelius: Violin Concerto in D Minor
Dvorak: Violin Concerto in A Minor
Mendelssohn: Violin Concerto in E Minor
Lalo: Symphonie Espagnole in D Minor
Bruch: Violin Concerto in G Minor
Mozart: Violin Concerto No. 3 in G Major
Mozart: Violin Concerto No. 4 in D Major
Conus: Violin Concerto in E Minor
Ysaye Sonata No. 2 in A Minor
Bach: Solo Partita No. 3 in E Major
Bach: A Minor Partita, Grave and Fugue
Bach: D Minor Partita, Chaconne
Bach: G Minor Sonata, Adagio and Fugue
Paganini: Caprices 11, 13, 16, 17, 19
Corigliano: The Red Violin Caprices
Esmail: Darshan

Chamber Repertoire:

Haydn: "Emperor" Quartet Op. 76 No. 3 in C Major
Beethoven: Quartet No. 10 in Eb Major
Schumann: Piano Quartet in Eb Major
Schubert: Piano Trio No. 1 in Bb Major
Debussy: Piano Trio in G Major
Brahms: Horn Trio in Eb Major
Brahms: String Quintet No. 1 in F Major
Britten: Quartet No. 1 in D Major
Mendelssohn: Quartet No. 2 in A Minor
Mendelssohn: Quartet No. 6 in F Minor
Ravel: Quartet in F Major
Cage: Living Room Music
Andriessen: Workers Union
Bacewicz: Quartet No. 4

RECENT SHORT BIO:

Arun Asthagiri, (full-time PhD student) is a PhD student working in the MIND (Music, Imaging, and Neural Dynamics) lab at Northeastern University. He holds a Bachelor's of Music with Academic Honors and Music Theory Minor from the New England Conservatory and has training in neuroscience, computer science, and music technology. His research focuses on the neural and physiological dynamics of music listening, and how they underlie cognitive and affective processes. He fostered an interdisciplinary collaboration between the New England Conservatory and the MIND Lab to study the entrainment of neural oscillations in live and recorded music using phase-based EEG methods. In the music cognition space, he has investigated how rhythms in music support neural correlates of sustained attention and working memory. Along with EEG, Arun has conducted research on physiological correlates of musical chills. Using a combination of peripheral and neurophysiological techniques, Arun is keen to continue to uncover mechanisms of musical affect and reward that span the brain and body.