Ninad Vijay Puranik

+1 438 493 3706 | puranik.ninad@gmail.com | linkedin.com/in/ninad-puranik | github.com/PNinad | Google scholar

Education

McGill University — Montreal, Canada
PhD. Music Technology — *Sep 2021 – Dec 2025 (anticipated)*

- **Lab:** Computational Acoustic Modelling Laboratory
  Supervisor: Prof. Gary Scavone

Universitat Pompeu Fabra — Barcelona, Spain
M.S. in Sound and Music Computing, GPA : 8.83 / 10 — *Sep 2018 – Aug 2019*

- **Thesis:** Automatic Assessment of Singing https://zenodo.org/record/3932439
  Supervisor: Prof. Baris Bozkurt Co-supervisor: Prof. Xavier Serra

Birla Institute of Technology & Science — Pilani, India
B.E. (Hons.) Mechanical Engineering , GPA : 8.38 / 10 — *Aug 2006 – May 2010*

Relevant Experience

PhD Student- Computational Acoustics Modeling Lab — Sep 2021 - ongoing
McGill University — *Montreal, Canada*

- Published research on free-reed acoustics and harmonium synthesis at prominent conferences
- Demo of virtual harmonium based on signal model showcased at DAFx2023 Copenhagen.
- Research on 'Assistive Technology for Trumpet Pedagogy' as part of CIRMMT Student Award project.

Casual Research Assistant (part-time)- Music Performance Simulator — Mar 2022 - ongoing
McGill University — *Montreal, Canada*

- Developed a GUI application in Python using the Qt framework to be used for Performance Science research at the Music Performance and Body Lab (Prof. Isabelle Cossette)
- Using this application music students can do performance practice in simulated scenarios such as music auditions, stage concerts, etc. helping them to understand and overcome performance anxiety. The practice session videos and activity logs are stored by the application which is vital data for researchers in music performance science

Research Intern (part-time) - HRTF and Room acoustics — Oct 2023 - Jan 2024
Outerecho Inc. — *Montreal, Canada*

- Implementing reflection and refraction filters for HRTF and room acoustics in MATLAB
- Exploring machine learning approaches for filter coefficient interpolations

Co-Instructor - MUMT301 Music and the Internet — Fall 2022 & Fall 2023 terms
McGill University — *Montreal, Canada*

- Responsible for teaching basic web development in the context of music applications.
- Introduced advanced programming concepts to music performance students without prior coding experience by developing simple music-related web applications in a friendly and accessible way.

Lead Engineer - Machine Learning — April 2020 – Sep 2021
Airtel X Labs — *Bangalore, India*

- Trained speech-to-text (STT) models for multiple low-resource Indian languages using wav2letter++ to be used in customer care automation for Airtel.
- Responsible for preparing audio and text datasets, online-audio augmentations for training and fine-tuning the STT models.

Research and Development Engineer — Oct 2019 – Mar 2020
MusicMuni Labs (Riyaz App) — *Bangalore, India*

- Ported the SOTA algorithm developed in Python during my master thesis to an efficient C++ implementation capable of running on mobile devices to assess the singing exercises on the Riyaz App and generate a score that is used to provide real-time feedback of the singing to the users.
- Streamlined & automated back-end processes to simplify addition of new content & improve user experience on Riyaz 'Learn to sing' App https://riyazapp.com/

Research Assistant - MusicCritic project, Oct 2018 – July 2019

Music Technology Group (MTG-UPF) *Barcelona, Spain*

- Developed automatic assessment tool for singing performances of students based on the measuring their similarity to a reference performance by a teacher
- Investigated methods and features for audio to audio alignment of two versions of the same melodic phrase
- Devised new features based on pitch histogram to gauge pitch accuracy of singing

Founder-Director Apr 2012 - Jun 2018

Verve Study Circle *Pune, India*

- Started and managed the institute to train pre-university students for Mathematics, Physics Olympiads and science & engineering entrance examinations to give them strong mathematical foundations and scientific temperament for their university studies and beyond
- Noteworthy results: Two students selected for B.Tech. at IIT Kanpur

Skills

- **Skills** : Musical Acoustics, Audio signal processing, Music information retrieval, Machine learning, Teaching, Music Performance
- **Languages**: Python, Bash, C/C++, MATLAB, Pure Data, Max/MSP

Publications, Awards and Talks:

- Puranik, N.V. and Scavone, G.P., 2022, September. Physical modelling synthesis of a harmonium. In Proceedings of Meetings on Acoustics FVTMA (Vol. 49, No. 1, p. 035015). Acoustical Society of America. https://asa.scitation.org/doi/abs/10.1121/2.0001679
- Puranik, N., and Scavone, G. Physically Inspired Signal Model for Harmonium Sound Synthesis. Proc. of Proceedings of the 26th International Conference on Digital Audio Effects, 2023 (DAFx2023 Copenhagen).
- Puranik, N., and Scavone, G. Clamped bar model for free reeds. 10th Convention of the European Acoustics Association, Forum Acusticum, Torino, 2023
- A.Acquilino, N.Puranik, I.Fujinaga, and G. Scavone, "A Dataset and Baseline for Automated Assessment of Timbre Quality in Trumpet Sound", in Proc. of the 24th Int. Society for Music Information Retrieval Conf., Milan, Italy, 2023.
- A. Acquilino, N. Puranik, I. Fujinaga, G. Scavone, 2023. Detecting efficiency in trumpet sound production: proposed methodology and pedagogical implications. Proc. of the 5th Stockholm Music Acoustic Conference
- CIRMMT Student Award for project titled 'Harmonium Continuum: a keyboard interface for melodic expressions in Hindustani music using traditional harmonium gestures' in collaboration with Travis West. https://www.cirmmt.org/en/funding/past-student-award-recipients
- CIRMMT Student Award for project on 'Assistive Technology for Trumpet Pedagogy' in collaboration with Alberto Acquilino. https://www.cirmmt.org/en/funding/past-student-award-recipients
- N. V. Puranik and G. Scavone,"Aeroacoustic modeling of blown-closed free reeds," The Journal of the Acoustical Society of America, vol. 155, pp. A196–A196, 03 2024.
- N. V. Puranik, "Harmonium- ARTASIA," August 2024. Live lecture-demonstration concert in the 7th edition of Arts appreciation series- 'Artasia', organized by Centre-Kabir, Montreal, Canada.

Other Achievements

- **Accomplished Harmonium player**: I regularly perform as a soloist and accompanist for Hindustani Music concerts. Links to some of my performances: https://pninad.github.io/puranikninad/music.html
- Rated tournament Chess Player [FIDE international rating: current 2044, highest 2130]