

Elena Georgieva

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Personal Website & Portfolio: elenatheodora.com

Education

New York University | M.A.R.L. 2020- 2024 (expected)

Music Technology, PhD

- Advisors: Dr. Brian McFee, Dr. Pablo Ripollés
- Coursework: Music Information Retrieval, Digital Signal Theory, Machine Learning, Neural Networks, Mastering, Audio Production, Mixing in the DAW, Cognitive Neuroscience of Music

Stanford University | C.C.R.M.A. 2017- 2019

Music, Science, and Technology, M.A.

Stanford Arts Institute Fellow

- Research Mentors: Dr. Jonathan Berger and Dr. Blair Kaneshiro (Music Information Retrieval), Dr. Takako Fujioka (Neuroscience and Music), Dr. Ge Wang (Computer Music, Design)
- Coursework: Machine Learning, Audio Signal Processing, Computer-Generated Sound, Spatial Audio, Signal Processing for Digital Audio Effects, Auditory Neuroscience, Psychoacoustics & Music Cognition

UCLA University of California, Los Angeles 2013- 2017

Cognitive Science, B.S.

- Specialization in Computing, Minors in Mathematics and Musicology
- Research assistant in Dr. Bjork's Learning & Forgetting Lab and Dr. Rissman's Memory Lab

Professional Experience

Stanford University | CCRMA/ Dpt. of Music 2019 - 2020

Lecturer

- Instructor for Stanford's sound recording technology course sequence covering sound recording and mixing techniques.
- Managed the CCRMA recording studio including gear and technology maintenance and updates, as well as logistics.
- Supervised acoustics and studio-related research projects at CCRMA.

Universal Audio Summer 2018

Engineering Intern

- Worked on a machine-learning project, aiding in the preparation and identification of large datasets of musical data to be used for automatic tempo and meter analysis. This was implemented in UA's 2020 recording system LUNA.
- Assisted with recording studio tasks including testing and troubleshooting two new Universal Audio plugins, and setting up gear for several recording sessions.

Audio Engineer/ Producer 2018 - present

- Recorded six full length-albums, produced audio for several songs and music videos, ran live sound for 15 a cappella shows. My work has been nominated for a few awards by the Contemporary A Cappella Society.
- I've recorded around 100 singers to date and am especially experienced tuning and producing vocals.
- Samples of my work are available on my website: elenatheodora.com

AT&T / DirecTV Summer 2016

Software Engineering Intern

- Worked with DirecTV's mobile engineering team to update the NFL Sunday Ticket iPhone application. Wrote and modified code in Objective-C and Swift, made significant changes to the application's appearance and functionality.
- Presented my work for the CTO and company executives, received overwhelming positive feedback.

Research Project Highlights

HitPredict: Predicting Billboard Hits Using Spotify Data

ICML 2020 Music Discovery Workshop, Stanford CS 229: Machine Learning Poster Session

- Used Billboard data and the Million Song Dataset to collect metadata for ~4000 songs, then used the Spotify Web API to extract 10 unique audio features and predict a song's Billboard success.
- Ran machine-learning algorithms including Logistic Regression, Gaussian Discriminant Analysis, and a Neural Network. Ultimately, we are able to predict the Billboard success of a song with ~75% accuracy.

Impact of Familiarity on Music Preference During Simulated Cochlear-Implant Listening

ISMIR 2018

- Degraded songs using a cochlear implant simulator and had 18 participants with typical hearing listen to degraded vs intact songs as well as familiar vs unfamiliar songs.
- Found that quality plays a greater role in determining preference than familiarity. These results can be applied to music discovery and music recommendation systems, especially for listeners with hearing loss.

Research Experience

Publications

- Anne Hege, Camille Noufi, Elena Georgieva, & Ge Wang (2021). **Instrument Design for The Furies: A LaptOpera**. In *New Interfaces for Musical Expression (NIME)*.
- Elena Georgieva, Camille Noufi, Vidya Rangasayee, Blair Kaneshiro, and Jonathan Berger (2020). **An Evaluation Tool for Subjective Evaluation of Amateur Vocal Performances of “Amazing Grace”**. In *Extended Abstracts for the Late-Breaking Demo Session of the 21th International Society for Music Information Retrieval Conference (ISMIR)*.
- Elena Georgieva, Marcella Suta, Nicholas Burton (2020). **HitPredict: Using Spotify Data to Predict Billboard Hits**. *Machine Learning for Media Discovery Workshop at the International Conference on Machine Learning (ICML)*.
- Blair Kaneshiro, Brandi Frisbie, Elena Georgieva, and Daniel P. W. Ellis (2019). **Characterizing Musical Correlates of Large-Scale Discovery Behavior**. *Machine Learning for Music Discovery Workshop at the International Conference on Machine Learning (ICML)*, Long Beach, USA.
- Elena Georgieva and Blair Kaneshiro (2018). **Impact of Familiarity on Music Preference During Simulated Cochlear-Implant Listening**. In *Extended Abstracts for the Late-Breaking Demo Session of the 19th ISMIR Conference*, Paris, France.

Invited Talks and Poster Presentations

- **Vocal Recording, Production and Research** (2020). Guest lecture, Stanford University Music 192a: Sound Recording.
- **HitPredict: Using Spotify Data to Predict Billboard Hits** (2019). *Berkeley Synthesis Conference: Interdisciplinary Collaboration in Computational Music Research*. UC Berkeley, Berkeley, USA.
- **Music Recommendation Systems for Listeners with Hearing Loss** (2019). Invited talk, *Bay Innovative Signal Hackers Bash (BISH Bash)* Meetup. Pandora Radio, Oakland, USA.
- Elena Georgieva and Blair Kaneshiro (2018). **Using Spotify Audio Features to Study the Evolution of Pop Music**. Poster presentation at the *Workshop for Women in Music Information Retrieval at the 19th ISMIR Conference*, Paris, France.
- Elena Georgieva and Blair Kaneshiro (2018). **Music, Familiarity, and Preference**. Poster presentation at *Stanford Music and the Brain Symposium 2018: Performance*, Stanford, USA.

Skills

Programming Languages: C/C++, MATLAB, Python including Librosa, Scikit-Learn, Numpy

Software: Logic Pro X, Unity, Adobe Photoshop, Melodyne, Universal Audio, Audacity, Max/MSP, Mac, Windows, Linux

Research: music information retrieval/ MIR, machine learning, electroencephalography (EEG), human subjects research, statistics, acoustics, virtual acoustics, hearing science, audio signal processing, 3D spatial audio, acoustic measurements

Music: voice (13 years), piano (12 years), vocal arranging, recording/ production, directing, music theory

Languages: Fluent in Bulgarian, some French, European Union and U.S. Citizenship

Other Experience

Conference Involvement

- Sponsorship Chair, ISMIR 2020 (International Society for Music Information Retrieval)
- Reviewer, ISMIR (International Society for Music Information Retrieval)
- Organizer, BISH Bash Meetup (Bay Area Innovative Signal Hackers)
- Women in MIR representative, recipient of a WiMIR travel award grant (2018)

Teaching & Outreach

- Instructor: InspiritAI (Summer 2021) AI education for advanced high school students
- Master’s Thesis Reader – NYU Dept. of Music and Performing Arts Practice (Fall 2020, Spring 2021)
- Section Leader: Stanford Computer Science 106A “Code in Place”: Programming Methodologies (Spring 2020)
- Assistant Instructor Volunteer: Streetcode Academy, East Palo Alto: Music Technology (Winter 2020, Spring 2020)
- Instructor: Los Angeles A Cappella Festival (2019, 2021), Masterclass Instructor for various a cappella workshops
- Arts Instructor Volunteer: L.A.C.E.R. Program, Fairfax High School, Los Angeles (2013-2017)