Iroro **Orife**

AUDIO DSP, SPEECH · RESEARCH ENGINEER

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Objective

An applied research & software development role in audio, speech and natural language technologies

Skills

Languages	Python, C/C++, Objective-C, bash, LaTeX, Java, Scala, MATLAB
DSP	Fourier Analysis, IIR/FIR Filter Design, MIR features, segmentation, source separation, ARM NEON SIMD
Speech	Training & maintenance of custom LVCSR models in Kaldi (DNN-HMM, LF-MMI), with n-gram LMs
Machine Learning	DNN, RNN & seq2seq modeling in TF, Keras & PyTorch, clustering & classification, scikit-learn, PCA/ICA/NMF
Audio	Solid knowledge of audio engines, codecs, effects, mixing, psychoacoustics, audio production & post-production
Audio Frameworks	LibROSA, numpy, CoreAudio, AudioUnit, Stagefright, Audioflinger
Infrastructure	Horizontally scaling Kaldi decoders in AWS EC2. Apache {Kafka, Spark}
Intangibles	I ship! Fast learner with strong engineering communication, team work ethic & emotional intelligence

Experience

Netflix *Los Gatos, CA*

SENIOR SOFTWARE ENGINEER - AUDIO ALGORITHMS *Nov. 2018 - Present*

- Algorithm design for audio content analysis, prototyping, implementation & product-ization
- At-scale (deep) machine learning on audio for film audio production & post-production tasks
- Construction of large-scale training sets and audio ML pipelines

Marchex *Seattle, WA*

STAFF ENGINEER *Sept. 2014 - Nov. 2018*

- Algorithm design, prototyping, implementation, performance analysis & optimization
- Develop audio-dsp algorithms for language & telephony SPAM identification
- Construct corpora for conversational speech recognition. Design automatic data selection algorithms
- Train, deploy & maintain custom DNN-HMM models in Kaldi. Experiment with novel end-to-end ASR architectures
- Perform 24/7 on-call support of fleet processing 1M calls/day. Extensive experience with AWS EC2 {LB, ASG, EFS, EBS}

Dolby Laboratories *San Francisco, CA*

STAFF AUDIO APPLICATIONS ENGINEER *Jan. 2012 - Aug. 2014*

- Worked on embedded systems implementations/ports of Dolby's perceptual audio coding & audio post-processing
- Algorithms: MDCT, spectral extension, hybrid complex QMF, dialog, bass & volume leveling, surround virtualization
- Extensive experience conducting acoustic measurements & critical listening
- Mentored junior engineers & regularly lectured on Dolby's audio-dsp algorithms to APAC FAE staff

Apple *Cupertino, CA*

SENIOR AUDIO SOFTWARE ENGINEER *Feb. 2006 - Nov. 2011*

- **2006 - 2009**: Developed system level audio & effect processing features for Soundtrack Pro v2, Final Cut Studio 2 & 3
- Integrated, fixed bugs and maintained audio-unit hosting code for Logic Pro audio effects within ST Pro, Final Cut Pro X
- **2010-2011**: Developed & shipped an audio auto-synch tool & a multi-channel audio file configuration classifier for FCP X
- Collaborated with the CoreAudio team on optimizations to their resampler & audio analysis algorithms

2KSports *San Rafael, CA*

AUDIO SOFTWARE ENGINEER *May 2005 - Jan. 2006*

- Developed C/C++ tools & libraries for the XBOX360 launch of NBA2k6, NHL2k6, College Hoops 2K6
- Performed support tasks to game development teams using the audio library

Education

Dartmouth College *Hanover, NH*

A.M. IN MUSIC COMPOSITION (ELECTRO-ACOUSTIC MUSIC) *Sept. 1999 - June 2001*

- Interdisciplinary Masters in 20th century Composition, Music Cognition, Aesthetics, Acoustics & Signal Processing

Carnegie Mellon University
Pittsburgh, PA
B.Sc. IN ELECTRICAL AND COMPUTER ENGINEERING, WITH A DOUBLE MAJOR IN MATHEMATICS/COMPUTER SCIENCE
Sept. 1993 - May 1997

École polytechnique fédérale de Lausanne (EPFL)
Lausanne, Switzerland
3RD YEAR EXCHANGE STUDENT IN COMPUTER AND COMMUNICATION SCIENCES
July 1995 - August 1996

Publications

2018	**The Marchex 2018 English Conversational Telephone Speech Recognition System**, arXiv
2018	**Attentive Seq2Seq Learning for Diacritic Restoration of Yorùbá Text**, Accepted for Interspeech 2018
2017	**Audio Spectrogram Factorization for Classification of Telephony Signals**, arXiv
2017	**Semi-Supervised Model Training for Unbounded Conversational Speech Recognition**, arXiv
2009	**Introduction to Digital Signal Processing (review)**, Computer Music Journal
2001	**Riddim: A Rhythm Analysis Tool Based On Independent Subspace Analysis**, MA Thesis

Patents Issued

2015	**US 9,485,354**, Identifying call features and associations to detect call traffic SPAM	*Marchex*
2015	**US 8,929,561**, System and Method for Automated Audio Mix Equalization	*Apple*
2014	**US 8,842,842**, Detection of audio channel configuration	*Apple*
2013	**US 8,621,355**, Automatic synchronization of media clips	*Apple*

Extracurricular

**Institute of Electrical and Electronics Engineers (IEEE), Audio Engineering Society (AES),
International Speech and Communication Association (ISCA)**
MEMBER
2012 - PRESENT

Niger-Volta Language Technologies Institute
FOUNDER OF OPEN-SOURCE WEST AFRICAN LANGUAGE PROJECT
2018 - PRESENT

Unicode Common Locale Data Repository (CLDR) Project
YORÙBÁ LANGUAGE CONTRIBUTOR
2007 - 2008

The Society for Electro-Acoustic Music in the United States (SEAMUS)
MANAGING EDITOR FOR JOURNAL SEAMUS
2008-2012

DC Productions (Independent record label)
OWNER, SONGWRITER, RECORDING ARTIST, PRODUCER, REMIXER, A&R, STAFF WRITER
2003-2012

Natural Languages

French
FULL PROFESSIONAL PROFICIENCY, WRITTEN & SPOKEN
- University of Lausanne coursework in Literature & Film
- ILR proficiency of 4+

Yorùbá
CONVERSATIONAL PROFICIENCY
- Junior secondary school reading/writing level

Spanish
BASIC PROFICIENCY
- Fulfill traveling needs & conduct myself in a polite manner