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 fleets of Kaldi decoders in AWS EC2: Load Balancers, Auto-Scaling & Target groups
Intangibles	I ship! Fast learner with strong engineering communication, team work ethic & emotional intelligence

Experience

Marchex — *Seattle, WA*

STAFF ENGINEER — *Sept. 2014 - PRESENT*

- Applied research (from prototype to production) in narrowband conversational speech recognition
- Audio DSP algorithm development for language & Telephony SPAM identification
- ASR Acoustic & Language model corpus preparation. Labeling tooling, scoring & data pipeline development
- Designed selection algorithms to automatically build audio & text corpora from 80k hours of audio & billions of text utterances
- Training custom DNN-HMM models in Kaldi. Various experiments with E2E ASR
- AWS EC2 {LB, ASG, EFS, EBS}. 24/7 on-call support of fleet processing 1M calls/day

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
- Coding algorithms: Hybrid complex QMF, MDCT, spectral extension, Adaptive hybrid transform (AHT)
- Processing algorithms: Dialogue clarity, surround virtualization, volume leveling & bass enhancement
- 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 tools for Soundtrack Pro v2, Final Cut Studio 2 & 3.
- Fixed bugs and maintained audio-unit hosting code for Logic Pro audio effects within STP Pro.
- Collaborated with core-audio team on optimizations to their resampler and audio analysis algorithms
- **2010-2011**: Developed & shipped an auto-synch feature for ingested media
- Designed & shipped a multi-channel audio file configuration classifier for Final Cut Pro X
- Maintained custom 64-bit versions of Logic Pro audio effects within the FCP X Audio-Unit hosting environment

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)
3RD YEAR EXCHANGE STUDENT IN COMPUTER AND COMMUNICATION SCIENCES

Lausanne, Switzerland
July 1995 - August 1996

Publications

2018	**Attentive Sequence-to-Sequence Learning for Diacritic Restoration of Yorùbá Text**, INTERSPEECH 2018
2017	**Semi-Supervised Model Training for Unbounded Conversational Speech Recognition**, arXiv
2017	**Audio Spectrogram Factorization for Classification of Telephony Signals**, Marchex Technical Report
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)

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*

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