Rithesh Kumar Ravikumar
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SUMMARY

Practical experience in Digital Signal Processing and Applied Electronics. Skilled in building technology for music through research. Have co-authored multiple research papers.

EDUCATION

2014-Present

Georgia Institute of Technology Atlanta, GA
http://www.gtcmt.gatech.edu/
Graduate degree in Music Technology
Part of the **Music Informatics Group** at Centre for Music Technology, Georgia Tech.
Completed Courses include:

- Analog Circuits for Music Synthesizers
- Modeling and Researching Acoustic Spaces
- Music DSP
- Random Processes
- Audio Software Engineering

Completed Projects include:

- **The Tap Drum protocol**: Designed a 3D printed finger tap drum that controlled a synthesizer, using gesture recognition. Awarded third position in Guthman student instrument design challenge.
- **Mangler!**: An analog synthesizer module, that does waveshaping.
- **Beat Generator**: A MAX/MSP app to visualize and synthesize Euclidean rhythm using Bjorklund's Algorithm.
- **PseudoShazam**: An Audio Fingerprinting System on which Shazam is based off.
- Research and implementation of **realtime DSP algorithms**: Fundamental Frequency and Onset Detection.
- **The VoCopter**: A voice controlled video game, implementing realtime pitch tracking. Uses JUCE C++ framework.
- **Mono2Stereo**: An audio plugin to convert incoming mono track to stereo output. Also using JUCE C++ framework.

2010-2014

Vellore Institute of Technology Vellore, India
http://www.vit.ac.in/sense
Undergraduate degree in Electronics and Communication Engineering

- Special achiever award 2013, 2014 at VIT University, for extra academic achievements.
- Best paper award for "PWM based visible communication using LED receivers"
- First phase winner in **Texas Instruments Analog Design Contest** for "Handheld Vehicle lock system" for innovative automobile theft warning and prevention. Implemented on an **MSP 430**, along with a GSM module.
- Projects include: Data prediction through sonification, **Spoken word detection**, **Audio Amplifier** and **CANSAT** (a satellite in a can, group project).

WORK EXPERIENCE

2015

Sunhouse Inc. New York, NY
http://sunhou.se
Audio Software Intern
Wrote **test cases** for their core DSP algorithm using **C++**. Sunhouse launched their project Sensory Percussion, that turns the acoustic drums into an electronic music instrument. Involves realtime audio signal processing.

2014	**Centre Nationale de la Recherche Scientifique** Marseille, France http://www.lma.cnrs-mrs.fr/ Intern at Laboratoire de Mécanique et d'Acoustique Helped develop 'The Singing Baguette'. It is a drumstick controlling a synthesizer wirelessly, with no external sensors. The project used gesture recognition algorithms to interpret the data received from the inbuilt inertial measurement unit.
2016 - present	**Kickr Design LLC** Atlanta, GA http://www.kickrdesign.com/ Engineering Consultant Electronics Engineer **Responsible for electronics** aspect of the multiple products developed here. Skills include, analog design, embedded programming and product development.

CONFERENCE PAPERS

Rithesh Kumar R, Mohanaprasad K, *Comparative analysis of Kurtosis and Negentropy principles for music elements separation using Independent Component Analysis*, Conference on Computer Music and Multidisciplinary Research 2013, Marseille, France

Rithesh Kumar R, Mugilan M, Sugumaran S, *Pulse Width Modulation based Visible Light Communication using LED receivers,* International Conference on Recent Trends in Engineering and Technology 2013, Bangalore, India.

Ashwin Kumar N, AyushAgarwal, Rithesh Kumar R, Shivank Gupta and Padmini T.N, *Handheld Vehicle Lock Control System,* Texas Instruments Indian Educator's Conference 2013, Bangalore, India

J.Valarmathi, D.S.PavanRaviTeja, Rithesh Kumar R, D.S.Emmanuel and S.Christopher, *Tracking using Converted Measurement Kalman Filter through improved algorithm in the missed detections scenario,* ICUMT 2012, St. Petersburg, Russia

Rithesh Kumar R, Ashwin Kumar N, J.Valarmathi and V.Karthik Reddy, *Processor based Estimation of Targets,* ICUMT 2012, St. Petersburg, Russia

Rithesh Kumar R, AshwinKumar N, J.Valarmathi, *Cubic Spline based Target Velocity Estimation,* SET conference 2012, VIT University, India

Siripurapu Shanmukha Rao, Elisetti Hari Krishna, Jakkam Anil Kumar, Rithesh Kumar R, J.Valarmathi , D.S. Emmanuel, *An Optimized Algorithm for Velocity Estimation of a Target Based on Newton's Method*, SET conference 2011, VIT University, India

TECHNICAL SKILLS

Matlab, C++, Javascript
Embedded Programming: DSP, Arduino, Processing, XMOS, Raspberry Pi
Max/MSP

EXTRACURRICULAR ACTIVITIES

Drummer, Lead vocalist and DJ at various acts, during undergraduate study.
Past member of Taal Tadka, a Georgia Tech based A cappella group
soundcloud.com/dravidan
Audio engineer and Content producer at VIT University's FM station.