

ANTON JERAN RATNARAJAH

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PERSONAL STATEMENT

I am a 5th year PhD student at the University of Maryland, College Park advised by Professor Dinesh Manocha. My research area is broadly in audio and speech signal processing.

EDUCATION

University of Maryland - College Park

PhD in Electrical and Computer Engineering

Cumulative GPA: 3.88/4.0

College Park, MD, USA

Aug. 2019 – Present (2024 expected)

University of Moratuwa

Bachelor of Science in Engineering

Cumulative GPA: 3.91/4.2

Moratuwa, Sri Lanka

Feb. 2014 – Jan. 2018

PUBLICATIONS

AdVerb: Visually Guided Audio Dereverberation

Sanjoy Chowdhury, Sreyan Ghosh, Subhrajyoti Dasgupta, **Anton Ratnarajah**, Utkarsh Tyagi, Dinesh Manocha.
ICCV 2023

Towards Improved Room Impulse Response Estimation for Speech Recognition

Anton Ratnarajah, Ishwarya Ananthabhotla, Vamsi Krishna Ithapu, Pablo Hoffmann, Dinesh Manocha, Paul Calamia
ICASSP 2023

MESH2IR: Neural Acoustic Impulse Response Generator for Complex 3D Scenes

Anton Ratnarajah, Zhenyu Tang, Rohith Aralikatti, Dinesh Manocha
ACM Multimedia 2022 (Oral)

GWA: A Large Geometric-Wave Acoustic Dataset for Audio Deep Learning

Zhenyu Tang, Rohith Aralikatti, **Anton Ratnarajah**, Dinesh Manocha
SIGGRAPH 2022

FAST-RIR: Fast neural diffuse room impulse response generator

Anton Ratnarajah, Shi-Xiong Zhang, Meng Yu, Zhenyu Tang, Dinesh Manocha, Dong Yu
ICASSP 2022

IR-GAN: Room Impulse Response Generator for Far-field Speech Recognition

Anton Ratnarajah, Zhenyu Tang, Dinesh Manocha
INTERSPEECH 2021

TS-RIR: Translated synthetic room impulse responses for speech augmentation

Anton Ratnarajah, Zhenyu Tang, Dinesh Manocha
IEEE ASRU 2021

Improving Reverberant Speech Separation with multi-stage training and curriculum learning

Rohith Aralikatti, **Anton Ratnarajah**, Zhenyu Tang, Dinesh Manocha
IEEE ASRU 2021

Moving Object Based Collision-Free Video Synopsis

Anton Jeran Ratnarajah, Sahani Goonetilleke, Dumindu Tissera, Kapilan Balagopalan, Ranga Rodrigo
IEEE International Conference on Systems, Man, and Cybernetics (SMC), Miyazaki, Japan, 2018

PREPRINTS

Listen2Scene: Interactive material-aware binaural sound propagation for reconstructed 3D scenes

Anton Ratnarajah, Dinesh Manocha
Arxiv

M3-AUDIODEC: Multi-channel multi-speaker multi-spatial audio codec

Anton Ratnarajah, Shi-Xiong Zhang, Yi Luo, Dong Yu

Arxiv

WORK EXPERIENCE

Research Intern

Tencent America

May. 2023 – Aug. 2023

Bellevue, Washington, United States

Implemented an innovative neural spatial audio codec for efficient compression of multi-channel (binaural) speech in both single and multi-speaker scenarios while retaining the spatial location information of each speaker.

Research Scientist Intern

META

May. 2022 – Nov. 2022

Redmond, Washington, United States

Implemented a novel algorithm to estimate room impulse response from a reverberant speech.

Research Intern

Tencent America

May. 2021 – Aug. 2021

Bellevue, Washington, United States

Implemented a neural-network-based fast diffuse room impulse response generator (FAST-RIR) for generating room impulse responses (RIRs) for a given acoustic environment.

Engineer

Wave Computing

Feb. 2018 – Jul. 2019

Colombo, Sri Lanka

Developed machine learning applications for Wave Computing's Dataflow Processing Unit (DPU) Architecture using Wave Flow Graph (WFG), a data flow description language developed by Wave Computing. Compiled and simulated the designs in Wave Computing's complete EDA toolchain. Debugged and proposed suggestions to improve the toolchain and the architecture.

Research Intern

HESL Lab, Nanyang Technological University

Aug. 2016 – Dec. 2016

Singapore

Successfully completed a project titled "Low complexity techniques for Vehicle Localization and Tracking" under the guidance of Dr. Lam Siew Kei.

TEACHING EXPERIENCE

ENEE 245: Digital Circuits and Systems Laboratory

Teaching Assistant for Associate Professor Manoj Franklin

University of Maryland

Spring 2022

CMSC 742: Algorithms in Machine Learning: Guarantees and Analyses

Teaching Assistant for Professor Furong Huang

University of Maryland

Fall 2021

ENEE 630: Advanced Digital Signal Processing

Teaching Assistant for Professor K. J. Ray Liu

University of Maryland

Fall 2020

ENEE 425: Digital Signal Processing

Teaching Assistant for Associate Professor Behtash Babadi

University of Maryland

Spring 2020

ENEE 425: Digital Signal Processing

Teaching Assistant for Professor Carol Espy-Wilson

University of Maryland

Fall 2019

ACADEMIC SERVICES

- I served as a reviewer for the ACM Multimedia 2023, ACM UIST 2023, IEEE VR 2023, MERCON 2019.

HONORS AND AWARDS

- Won B.Sc. grant for outstanding SMCS B.Sc. thesis work from the IEEE SMCS Thesis Grant Initiative in 2018.
- Became Runner-Up in the Startathon Competition organized by Nanyang Technological University, Singapore in 2016.
- Our project titled Forensic Video Analytics Software was awarded Gold Medal in the "Tertiary Student Project (Technology)" Category on the 20th National Best Quality ICT Awards, in Sri Lanka.

COURSEWORK

Artificial Intelligence: Deep Learning for Audio-to-Audio Processing, Foundations of Deep Learning, Algorithms in Machine Learning: Guarantees and Analyses
Signal Processing: Speech and Audio Processing, Random Processes in Communication and Control, Advanced Digital Signal Processing, Information Theory
Other: Compilers and Optimization

TECHNICAL SKILLS

Languages: Python, C/C++, Java, Matlab
Public Libraries: Pytorch, Tensorflow, OpenCV
Software and Tools: Kaldi, Latex