# PRIYANSHI PAL

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## EDUCATION

**Aalto University, Finland**      2023 (Ongoing)

Master of Science in Computer, Communication and Information Sciences

*Major: Speech and Language Technologies — Minor: Machine Learning, Data Science and Artificial Intelligence (Recipient of the Finland Scholarship Grant)*

**Ramaiah Institute of Technology (MSRIT), Bengaluru**      2015-2019

Bachelor of Engineering (B.E) in Electronics and Instrumentation - 7.3/10.0 CGPA

## RESEARCH EXPERIENCE

**Research Assistant**      Aug 2020 - May 2023

Signal Processing Interpretation and Representation (SPIRE) Lab,      *Bengaluru*

Electrical Engineering Department, Indian Institute of Science (IISc)

**Supervisors: Prof. Prasanta Kumar Ghosh (IISc), Prof. Chiranjeevi Yarra (IIIT Hyderabad)**

- <u>VoisTutor 2.0:</u> Explored the role of segmental and suprasegmental features in perceived overall pronunciation quality ratings through analysis on ∼30K phonetic transcriptions of Indian English(IE).

- <u>Characterisation of pronunciation variabilities of IE:</u> Identified phonological features of IE, considering ∼20 Indian native language varieties with 80 speakers, by performing a data-driven analysis on their IE phonetic transcriptions. Achieved a decrease of 22% PER (Phoneme Error Rate) in G2P (Grapheme to Phoneme) system performance by modifying a high-resource native English lexicon through found phonological features.

- <u>English Gyani:</u> Worked on the development of an application for language learning and assessment, aimed to teach English grammar and pronunciation to Indian learners, funded by IMPRINT and Department of Science & Technology (DST), Govt. of India. Steamlined input pipeline for application database and assessment stategies of annotation using statistical measures.

- <u>Outreach efforts:</u> Co-organised a course on "Engineering in Speech Science: Behavioral Machine Intelligence and applications" during 14th-18th December 2020, for ∼130 students under Scheme of Promotion and Academic Research Collaboration (SPARC), Ministry of Human Resource and Development (MHRD), Govt. of India.

## PUBLICATIONS

- Priyanshi Pal, Shelly Jain, Anil Valuppa, Chiranjeevi Yarra and Prasanta Kumar Ghosh, "Study of Indian English Pronunciation Variabilities relative to Received Pronunciation.", accepted in SPECOM-2023. [Arxiv Pre-print] (2023).

- Shelly Jain, Priyanshi Pal, Anil Valuppa, Chiranjeevi Yarra and Prasanta Kumar Ghosh, "An Investigation of Indian Native Language Phonemic Influences on L2 English Pronunciations", Interspeech 2023. [Arxiv Pre-print].

- Priyanshi Pal, Chiranjeevi Yarra, Prasanta Kumar Ghosh, "Voistutor 2.0: A Speech Corpus with Phonetic Transcription for Pronunciation Evaluation of Indian L2 English Learners," 25th Conference of the Oriental COCOSDA International Committee for the Co-ordination and Standardisation of Speech Databases and Assessment Techniques (O-COCOSDA), 2022. [link]

## WORK EXPERIENCE

**Junior Embedded Electronics Engineer**      Aug 2019 - Aug 2020

MIMYK, Indian Institute of Science      *Bengaluru*

- Led the electronics development of Electromechanical Control Handle (ECH) as an endoscope emulator for VR-based medical simulations of endoscopy. Aimed to train doctors without having to experiment on a patient.

- Developed ARM M4 Cortex-based USB-programmable PCB for ECH microcontroller, supports fast communication, designed for critical size contrainsts to fit inside ECH.

**Quality Assurance Engineering Intern**                                    Mar 2019 - May 2019

Amagi Media Labs                                                                      *Bengaluru*

- Tested and reported bugs for various applications such as video streaming for OTT platform.

## SKILLS

**Languages:** Python ; **Softwares & Tools:** MATLAB, LaTeX, TensorFlow, Autodesk Eagle

## RELEVANT ONLINE COURSES

- (ML0101EN) Machine Learning with Python: A Practical Introduction, IBM (Certificate)

- Neural Networks and Deep Learning, DeepLearning.AI (Certificate)

- Improving Deep Neural Networks, DeepLearning.AI (Certificate)

## UNDERGRADUATE PROJECTS

**Ambient Intelligence: Smart Mirror**                                                  2019

- Created a smart two-way mirror with personalized information display, voice-activated queries, facial recognition, and motion-sensing capabilities for efficient power management on a Raspberry Pi 3b platform.

**Design and Implementation of Smart Safety Helmet for Coal Miners**                    2018

- Developed a Safety Helmet prototype for coal miners, equipped with gas, pressure, and humidity sensors to detect environmental changes and send real-time data to the control room via Zigbee using Xbee S2C modules, ensuring early warning for potential hazards.

**Independent Projects**

- **Analysis of voltage signals of Vela Pulsar (PSR B0833-45)** [2019]: Investigated time-frequency domain properties of voltage signal of Pulsar from Ooty radio telescope.

- **Puck-pushing Robot** [2018]: Won third position at "UPAKARAN '18" robotics competition for a miniature 4-wheeler (ATmega328 microcontroller based) robot to score goal against other robots by pushing a "puck" into a goal

- **Maze solving robot** [2018]: Based on the Lee algorithm, the 4-wheeler robot senses path using IR sensors and finds the shortest path in a maze, presented at IEEE mini project exhibition at MSRIT, 2018.

## EXTRA-CURRICULAR ACTIVITIES

- Presented an interactive project to control air flow beneath a ping pong ball using speech rate and intensity of sound, at Open day IISc, 2023.

- Actively published poems in Annual Student College magazine "Sudarshan - 2019" at MSRIT.

- Volunteered for Cancer Awareness program organised by Times of India in 2018, at MSRIT.

- Marketing team member at the Annual Cultural Festival, "Udbhav' 17" at MSRIT.