

# Saurabh Kumar

Mahendru – 800006 Patna – India

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## Research Interests

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Speech Processing, Automatic Speech Recognition, Deep Learning, Speaker Recognition, Speech Emotion Recognition, Signal Processing

## Education

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<b>National Institute of Technology Patna</b> <i>B. Tech. in Electronics and Communication Engineering, CGPA: 7.42/10</i>	<b>Patna, India</b> 2020
<b>M S College Bhagalpur</b> <i>Intermediate of Science, Aggregate: 79.0%</i>	<b>Bhagalpur, India</b> 2016
<b>S D N High School Paharpur, Dighi</b> <i>Matriculation, Aggregate: 77.2%</i>	<b>Godda, India</b> 2013

## Research Experience

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<b>Undergraduate Research</b> <i>Dept. of ECE, NIT Patna</i> Supervisor: Dr. Syed Shahnawazuddin	August 2019 – June 2021 <i>Patna, India</i>
Description: <ul style="list-style-type: none"><li>◦ Developed robust children's speech recognition systems in low-resource conditions;</li><li>◦ Studied front-end feature enhancement techniques to improve the performance of automatic speech recognition systems in acoustically challenging environments;</li><li>◦ Improved the performance of children's mismatched speaker verification systems;</li><li>◦ Implemented a self-attention based convolutional neural network for speech emotion classification.</li></ul>	
<b>Major Project</b> <i>Dept. of ECE, NIT Patna</i> Supervisor: Dr. Rakesh Ranjan	January 2020 – May 2020 <i>Patna, India</i>
Title: Simulation of hybrid plasmonic waveguides and its applications Description: The goal of this project was to simulate and study the characteristics of various hybrid plasmonic waveguide-based devices using COMSOL Multiphysics software.	
<b>Summer Internship</b> <i>IIT Guwahati</i>	May 2019 – July 2019 <i>Guwahati, India</i>

Title: Cascade filter bank implementation of discrete wavelet transform

Description: The primary objective of this project was to implement a 5-stage cascade filter-bank structure of discrete wavelet transform in Verilog.

## Publications under review

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### Journals.....

S. Shahnawazuddin, **Saurabh Kumar**, A. Kumar, and W. Ahmad, "Enhancing Robustness of Zero-Resource Children's Speech Recognition System," *Computer Speech & Language*, Under review.

S. Shahnawazuddin, A. Kumar, V. Kumar, **Saurabh Kumar**, and W. Ahmad, "Robust Children's Speech Recognition in Zero Resource Condition," *Applied Acoustics*, Under review.

S. Shahnawazuddin, A. Kumar, **Saurabh Kumar**, and W. Ahmad, "Enhancing robustness of zero resource children's speech recognition system through bispectrum based front-end acoustic features," *Digital Signal Processing*, Under 2nd revision.

## Skills

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### Computer skills.....

**Programming:** Python, Shell Script, Verilog, C

**Software Packages:** Matlab, COMSOL Multiphysics, Vivado

**Tools:** Kaldi, TensorFlow, Keras, LaTeX

**Operating Systems:** Linux, Windows, Mac OS X

### Languages.....

- English
- Hindi

## Relevant Undergraduate Coursework

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- 7CS157: Soft and Evolutionary Computing
- 6EC143: Fuzzy Logic and Neural Network
- 5EC117: Digital Signal Processing
- 5CS171: Information Security
- 4MA109: Linear Algebra
- 3MA104: Tools for Applied Mathematics
- 3EC109: Signals and System Analysis
- 2MA102: Engineering Mathematics - II
- 2CS101: Introduction to Computing
- 1MA101: Engineering Mathematics - I

## Extracurricular Activities

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- Attended a five days TEQIP-III sponsored workshop on Machine Learning & Speech Processing, conducted by the Dept. of ECE, NIT Sikkim, in February 2021.
- Attended a two days workshop on embedded systems, organized by TechieNest Pvt. Ltd., in October 2017.
- Attended a summer training program on Core Java, organized by Oracle through RCPL India, in May 2017.
- Co-organized a fundraising to help flood-affected people of Bihar in 2017.
- Participated in drama event of annual cultural fest of 2017 at NIT Patna.

## Position of Responsibilities

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- Web coordinator of Yoga and Meditation Club of NIT Patna in 2018-19.
- Member of annual cultural fest 2018 organizing committee of NIT Patna.

## References

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Dr. Syed Shahnawazuddin  
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