DEEPAK **BABY**

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Experience

Applied Scientist *Oct 2020 – Present*

Amazon Alexa AGI *Aachen, Germany.*

- Develop and maintain speech recognition models for Alexa devices on multiple languages.
- Lead scientist in establishing incremental learning framework for Alexa ASR models for model freshness and hotfixing.
- Close collaboration with various engineering teams automating the production model builds.
- Working on developing state-of-the-art multi-modal architectures leveraging large language models.
- Extensive experience in working with big data, developing machine learning models and continuously improving them for prod deployment.

Post-doctoral Researcher *May 2019 - June 2020*

IDIAP Research Institute *Martigny, Switzerland.*

- Post-doctoral research fellow in the SNSF project 'SHISSM' with Prof. Hervè Bourlard.
- Collaborated with several PhD students providing support and guidance on their research.
- Developed speech enhancement (denoising and dereverberation) approaches using variational and adversarial auto-encoders.

Post-doctoral Researcher *Feb 2017 - Apr 2019*

Ghent University *Ghent, Belgium.*

- Post-doctoral research fellow in the ERC project 'RobSpear' with Prof. Sarah Verhulst.
- Developed neural network-based machine learning techniques for modelling and correcting hearing impairment.
- Seminal work on using neural networks for approximating computational auditory models and hearing aids.
- Patent on neural network-based computational auditory models and publications in Nature: Machine Intelligence and Nature Communications.
- The patent was eventually granted $1M ERC funding for startup.

Visiting Researcher *Apr - Jun 2015*

Nuance Communications Inc. *Merelbeke, Belgium.*

- Investigated the previously proposed exemplar-based speech enhancement approaches as front-end for Nuance's ASR tasks on automotive data.

Visiting Researcher *Jun - Aug 2013*

Tampere University of Technology *Tampere, Finland.*

- Internship with Prof. Tuomas Virtanen, Audio Research Group, Dept. of Signal Processing.
- Investigated the use of Modulation Envelope features for feature enhancement to improve the noise robustness of Automatic Speech Recognition systems

Teaching Assistant *2013 - 2016*

KU Leuven *Leuven, Belgium..*

- Conducted the exercise sessions for the course *'Stochastic Signal and System Analysis'*.

Skills

Programming: Python, Tensorflow, PyTorch
Cloud Infrastructure and DevOps: AWS, SageMaker, Docker, CI/CD, GNU/Linux
Data Engineering: PySpark, Pandas

Education

KU Leuven *Leuven, Belgium.*

Doctor of Philosophy (PhD) *2012 - 2016*

Thesis : *Non-negative Sparse Representations for Speech Enhancement and Recognition*
Supervisor: Prof. Hugo Van hamme

IIT Bombay *Mumbai, India.*

Master of Technology (M.Tech) *2010 - 2012*

Specialization: Communication and Signal Processing (GPA: 9.45/10)
Thesis : *Extensions to Greedy Algorithms in Compressed Sensing*
Supervisor : Prof. Sibi Raj B Pillai

College of Engineering *Trivandrum, India.*

Bachelor of Technology (B.Tech) *2005 - 2009*

Specialization: Electronics and Communication Engineering (GPA: 7.57/10)

Patents & Publications