

# Rishabh Jain, PhD

DATA ANALYST | ML ENGINEER | DATA SCIENTIST | AI ENGINEER

## Contact Details:

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LinkedIn:

<https://www.linkedin.com/in/rishabhjain16>

GitHub:

<https://www.github.com/rishabhjain16>

Hugging face:

<https://huggingface.co/rishabhjain16>

Work Status: Stamp 4

## Fields of Interest

- Computer Vision and Deep Learning
- Python Development and Machine Learning
- Artificial Intelligence in Speech

## Technical Skills:

- Languages: SQL, R, Python, C, C++, C#, Java, HTML, CSS, Javascript, NodeJS
- Analytical techniques: Regression, Classification, Clustering, Forecasting, Neural Networks, PCA, SVM, CNN.
- ML Libraries: Pandas, NumPy, SciPy, Sklearn, Seaborn, Tensorflow, Keras, Tensorflow and PyTorch.
- Cloud and related platform:
  - AWS
  - GCP
  - Docker
- Version Control: Git, Bitbucket
- Software: Anaconda, Pycharm, Spyder, Jupyter Notebook, Visual Studio, Eclipse.

## Hobbies

- Football
- Reading
- Travelling
- Volunteering - Macnas Halloween Parade, Galway 2020, Rotaract, AIESEC, IEEE Student Branch chair

## Profile

Currently pursuing PhD from the University of Galway, Ireland. Data scientist with expertise in AI, particularly in the application of Speech-to-Text and Text-to-Speech technologies. Seeking a challenging position to leverage my skills and experience in a dynamic organisation. Effective in dealing with problems and coming up with creative solutions. Experience in working on tools and platform for development in Machine Learning, Deep Learning, Artificial Intelligence, Natural Language Processing, and Data Visualization.

## Work Background

### Research Assistant

University of Galway, Ireland

October 2020 - Present

- Project: DTIF-DAVID, Aim: Development of a multimodal (sound and vision) AI processing platform with low cost and low power consumption to be used for the creation of voice-enabled toys.
- Conduct a comprehensive review of existing research and literature related to child speech understanding, ASR and TTS.
- Collaborate with the research team to share insights, progress, and findings.
- Design and conduct experiments to evaluate the performance of the ASR and TTS system on child speech.
- Ensure compliance with ethical guidelines and privacy regulations when working with child speech data.
- Work on developing novel algorithms and models for ASR and TTS tailored specifically for child speech understanding.
- Developing applications for speech data collection, creating methodologies for data annotations and cleaning.
- Attending conferences, workshops, and seminars. Participate in knowledge sharing activities within the organisation and the research community.
- Documentations of research, preparing reports and presentations, and contributing towards novel publications.
- Setting up and managing distributed training pipelines, coordinating data preprocessing and augmentation, monitoring training progress, and evaluating model performance using appropriate metrics.
- Managing and leveraging multiple GPUs efficiently for distributing and parallelising computation to accelerate training and inference processes.

### Research Intern

Xperi Galway

October 2020 - Present

- Conduct research on state-of-the-art techniques, algorithms, and models related to STT and TTS.
- Collaborate with cross-functional teams, including engineers, linguists, and product managers from Xperi Ireland and Xperi USA.
- Documenting research findings, methodologies, and experimental results.
- Design and develop algorithms for speech recognition (STT) and speech synthesis (TTS) for edge devices.
- Collaborating with engineers for optimising AI models for deployment in production environment.

## Soft Skills

- **Teamwork:** Gained teamwork experience by working in teams for various masters and bachelor's projects and also by working in a team as a software development intern.
- **Communication:** Developed excellent communication skills through teaching, mentoring, and volunteering. And by giving presentations during PhD, masters and bachelor's education.
- **Leadership:** Working at NGOs, teaching, and volunteering through Rotaract and AIESEC led me to achieve excellent leadership qualities.
- **Research:** Completing numerous projects in PhD and Master's degree. Also worked on different online courses has led me to have enhanced critical, computer and research skills.
- **Problem Solving:** Built ability to solve problems by taking an analytical and systematic approach, demonstrated through various technical projects, hackathons, Kaggle competitions, and online courses.
- **Languages:** Full professional proficiency in English, native/bilingual proficiency in Hindi, and conversational proficiency in Spanish.

## Certifications

- AI for Medical Diagnosis by DeepLearning.ai | May 2020
- Introduction to Cyber Security Specialization by NYUI May 2019
- Machine Learning with TensorFlow on GCP Specialization | June 2018
- Deep Learning Specialization by DeepLearning.ai | April 2018
- Technology Training with projects TCS: Core JAVA | June 2017

## Referees

- Dr. Michael Schukat, Programme Director - M.Sc. in Artificial Intelligence, School of Computer Science, University of Galway | michael.schukat@universityofgalway.ie
- Dr. Peter Corcoran, IEEE fellow, Professor at the University of Galway, Lead PI in DAVID, HELIUS and D-real projects | peter.corcoran@universityofgalway.ie
- Gabriel Costache, Senior Director of Engineering at Xperi Ireland | gabriel.costache@xperi.com

## IEEE Student Branch Chair

University of Galway

January 2021 - September 2023

- Provide strong leadership and representation for the IEEE-SB.
- Planning and organising events, meetings, and activities.
- Organise technical talks, workshops, and conferences.
- Foster collaboration with other branches and industry partners.
- Represent the Student Branch at IEEE meetings and events.

## Education

### PhD in Artificial Intelligence for Speech

University of Galway, Ireland

September 2021 - Ongoing

- **Research Area:** An approach towards Child Speech Understanding through AI-Driven ASR and TTS System
- Working towards finalising my PhD by end of 2023.

### MSc Data Analytics

University of Galway, Ireland

September 2019 - August 2020 | (1.1 Honours)

- **Thesis:** Semi automatic toolkit for analysis of video, audio and text data based on face recognition in videos.

### B.Tech in Computer Science and Engineering with specialization in Bioinformatics

Vellore Institute of Technology, Tamil Nadu, India

July 2015 - May 2019 | (CGPA: 8.73 equivalent to 1.1 Honours)

## Publications and Conferences

### Publications

- R. Jain, M. Y. Yiwere, D. Bigioi, P. Corcoran and H. Cucu, "A Text-to-Speech Pipeline, Evaluation Methodology, and Initial Fine-Tuning Results for Child Speech Synthesis," in IEEE Access, vol. 10, pp. 47628-47642, 2022, doi: 10.1109/ACCESS.2022.3170836.
- R. Jain, A. Barcovski, M. Y. Yiwere, D. Bigioi, P. Corcoran and H. Cucu, "A WAV2VEC2-Based Experimental Study on Self-Supervised Learning Methods to Improve Child Speech Recognition," in IEEE Access, vol. 11, pp. 46938-46948, 2023, doi: 10.1109/ACCESS.2023.3275106.
- R. Jain, A. Barcovski, M. Y. Yiwere, D. Bigioi, P. Corcoran and H. Cucu, "A WAV2VEC2-Based Experimental Study on Self-Supervised Learning Methods to Improve Child Speech Recognition," in IEEE Access, vol. 11, pp. 46938-46948, 2023, doi: 10.1109/ACCESS.2023.3275106.
- Adaptation of Whisper models to child speech recognition - Accepted in INTERSPEECH 2023

### Journal and Conferences:

- Attended Interspeech 2021 (Hybrid)
- Attended IEEE Region 8 SYP congress held in Tunis, Tunisia to represent the University of Galway Student Branch
- Worked as Reviewer for IEEE Access Journal
- Working as Reviewer for IMVIP 23 conference
- Will be attending Interspeech 2023 to present the accepted paper.