

Moitree Basu

Curriculum Vitae



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Google Scholar

MASTER THESIS

“IPA2WAV: A Multi-speaker, Multilingual Phoneme Sequence to Speech Synthesizer”

My research tries to create an end-to-end Phoneme-To-Speech (PTS) synthesis system, which can render symbolic linguistic representations like phonetic transcriptions (in IPA) into high-quality, natural and intelligible speech. Apart from that, the system implements a guided attention model, for IPA character to time-step alignment, which helps the system to converge into the optimum solution even faster. The proposed system creates a common architecture to address multiple languages and multiple speakers’ style of speech. Compared to existing, similar systems, the proposed method provides more natural speech and a much sophisticated solution to the problem. This project also provides a platform to get utterances for user inputs and solves the problem of PTS synthesis from old scanned documents with IPA symbols.

I was motivated to conduct this research due to my passion for Neural Networks and its application in fields like Speech, NLP and Vision.

WORK EXPERIENCE

DFKI

Research Assistant (MLT Lab - MaryTTS)

I have implemented a new unit-selection module by removing the legacy functionalities and developed a neural grapheme-to phoneme conversion model for MaryTTS Blizzard 2018. Helped in data preparation in Blizzard 2017, 2018 (in a team of 2).

CURRENT, FROM 2016 (PT)

TATA Consultancy Services Limited

Systems Engineer (SAP HANA-BODS Developer)

This position involved working in Data Intelligence (DI) program as SQL Script developer in SAP HANA in-memory computing technology platform for Australian Gas and Lighting as client. The responsibilities were intensive use of Business Object Data Services, removing legacy functionalities, developing, scheduling, supporting production ready code running on huge flux of incoming data.

2012 – 2015 (FT)

Variable Energy Cyclotron Centre(VECC)

Project Intern

Worked on developing a “Word Frequency Statistics” software for “Sign-Language Animator”, helping physically challenged people to interact.

WINTER, 2011 (PT)

Saha Institute of Nuclear Physics (Govt. of India)

Research Intern (Computer Section)

Worked on developing a new improved algorithm by hybridizing Particle Swarm Optimization and Simulated Annealing algorithm.

SUMMER, 2011 (PT)

EDUCATION

2015-CURRENT

Master of Science

1.9 CGPA (NOT FINALIZED YET)
Computer Science
Saarland University

2008-2012

Bachelor of Technology

8.99/10.0 GPA (WITH HIGHEST SCORE 10)
Information Technology
West Bengal University of Technology

2006-2008

Higher Secondary

82.28%
West Bengal Council of HS Education

COMPUTER SKILLS

LANGUAGE	C, C++, Java, Python, R, HTML & CSS, PHP, JavaScript
OS	Unix, MacOS, Windows
TECHNOLOGIES	Tensorflow, Keras, Pytorch, NumPy, SciPy, scikit-learn, MATLAB, Octave, Gradle, Git, L ^A T _E X, SAP HANA, BODS

LANGUAGE PROFICIENCY

BEGINNER	German
PROFICIENT	English, Hindi
NATIVE	Bengali

SOFT SKILLS

Passionate, Teamplayer, Motivated, Consistent

AWARDS

2012	Gold Medal for “Best Student Award” TATA Consultancy Services Ltd
2011 & 2012	Best Student of The Year Award Netaji Subhash Engineering College West Bengal University of Technology
2013	“Best Conference Paper Award” IEEE International Conference on Advanced Computing Technologies ICACT-2013
2008-2012	Scholarship for Undergraduate Studies Govt. of India

COURSEWORKS

Master (in Transcript)

Machine Learning, Artificial Intelligence, S/W Engineering, Human-Computer Interaction, The Elements of Statistical Learning, Text to Speech Synthesis, Image Acquisition Methods, Statistical Natural Language Processing, Neural Networks: Implementation and Application, Statistics with R, Seminar: Non-Supervised Machine Learning Techniques, Project Seminar: VoiceBuilding for Text-To-Speech Synthesis, Software project: Natural Language Processing with Neural Networks

Master (Coursework only)

Image Processing and Computer Vision, High-level Computer Vision, Probabilistic Methods of Image Analysis, Probabilistic Graphical Models and their Applications, Database Systems

ACADEMIC PROJECTS

NAME **Lung Cancer Detection Using Deep CNN**
SUPERVISOR Prof. Dr. Dietrich Klakow
INSTITUTION Saarland University (2017 Winter)

NAME **Ultrasound Nerve Segmentation**
SUPERVISOR Prof. Dr. Bernt Schiele and Dr. Mario Fritz
INSTITUTION Saarland University (2016 Summer)

NAME **Voicebuilding for Text to Speech Synthesis**
SUPERVISOR Dr. Ingmar Steiner
INSTITUTION Saarland University (2015 Winter)

NAME **Evolutionary Algorithms in “Tag SNP Selection and DNA Sequencing”**
SUPERVISOR Partha Ghosh (Associate Prof., Dept. of IT)
INSTITUTION Netaji Subhash Engg. College (India)
(2011 -12 Undergraduate Dissertation)

NAME **Security of Cloud Computing-A Novel Algorithmic Approach**
SUPERVISOR Dr. Chandan Banerjee (Head of Dept., IT)
INSTITUTION Netaji Subhash Engg. College (India) (2012 Summer)

REFERENCES

Dr. Ingmar Steiner
POSITION Senior Researcher, Independent Research Group Lead
EMPLOYER DFKI
MMCI
EMAIL steiner@coli.uni-saarland.de

Prof. Dr. Dietrich Klakow
POSITION Professor
EMPLOYER Saarland University
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Dr. Sébastien Le Maguer
POSITION Postdoctoral Researcher
EMPLOYER Trinity College Dublin
EMAIL lemagues@tcd.ie

PUBLICATIONS

Maguer, S., Steiner, I., Tombini, F., Deb, P., Basu, M., Kröger, I. Agile MaryTTS Architecture for the Blizzard Challenge 2018.

Basu, M., Deb, P., Garai, G. Hybrid of Particle Swarm Optimization and Simulated Annealing for Multidimensional Function Optimization. *International Journal of Information Technology*, Vol. 20 No-1 Year-2014.

Basu, M., Deb, P. Tag SNP Selection Using Quine-Mccluskey Optimization Method *International Journal of Advanced Research in Engineering and Technology (IJARET)*, Volume:4, Issue: 5, Pages: 74-81, 2013.

Banerjee, C., Kundu, A., Basu, M., Deb, P., Nag, D., Datta gupta, R. A Service Based Trust Management Classifier Approach for Cloud Security. *International Conference on Advanced Computing Technologies (ICACT)*, IEEE, vol., pp.1,5, 21-22 Sept. 2013.

Deb, P., Basu, M. Next Generation Sequencing using Ant Colony Optimization Algorithm and Binary Particle Swarm Optimizers. *International Journal of Information Technology*, Vol. 20 No-1 Year-2014.

Deb, P., Basu, M. An Analogy of Algorithms for Tagging of Single Nucleotide Polymorphism and Evaluation through Linkage Disequilibrium *International Journal of Computer Engineering & Technology (IJCET)*, Volume: 4, Issue: 4, Pages: 514-523, 2013.

****First author or equal contributors in bold**

INTERNATIONAL TEST SCORES

GRE **319/340**
(Verbal: **152**, Quant: **167**, Writing: **3.5**)
TOEFL **100/120**
(Read: **24**, Listen: **27**, Speak: **27**, Write: **22**)

PASSIONATE ABOUT

Fiction writing, Teaching, Painting, Listening to music

PERSONAL INFORMATION

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APPENDIX I (ONLINE SCHOLARSHIPS)

Google Developer Challenge Scholarship 2017/18 (Udacity and Google)
Udacity Data Science Challenge Scholarship 2018/2019 (Udacity and Bertelsmann)
Facebook Pytorch Challenge Scholarship 2018/2019 (Udacity and Facebook)

APPENDIX II (CERTIFICATES)

Machine Learning (Coursera)
Algorithms: Design and Analysis, Part 1 (Coursera)
Neural Networks and Deep Learning (Coursera and DeepLearning.AI)
Convolutional Neural Networks (Coursera and DeepLearning.AI)
Structuring Machine Learning Projects (Coursera and DeepLearning.AI)
Improving Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization (Coursera and DeepLearning.AI)
Sequence Models (Coursera and DeepLearning.AI)
Deep Learning Specialization (Coursera and DeepLearning.AI)
Introduction to Computer Science I (edX)
Introduction to Computer Science and Programming (edX)
Introduction to Statistics: Descriptive Statistics (edX)
Introduction to Statistics: Probability (edX)
Introduction to Statistics: Inference (edX)
Introduction to Data Course (DataCamp)
Introduction to R Course (DataCamp)
Intermediate R (DataCamp)
Cleaning Data in R (DataCamp)
Intro to Statistics with R: Student's T-test Course (DataCamp)
Correlation and Regression Course (DataCamp)
Intro to Statistics with R: Analysis of Variance (ANOVA) Course (DataCamp)
Data Visualization with ggplot2 (Part 1) Course (DataCamp)
Intro to Python for Data Science Course (DataCamp)
Intermediate Python for Data Science Course (DataCamp)
Python Data Science Toolbox (Part 1) Course (DataCamp)
Python Data Science Toolbox (Part 2) Course (DataCamp)
Python Programming Track (DataCamp)
Deep Learning in Python Course (DataCamp)