

Curriculum Vitae

Adithya Balachandra

Senior Undergraduate
Dept. of Computer Science and Engineering
SRM Institute of Science and Technology

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RESEARCH INTERESTS Algorithms, Probability Theory and it's applications to the Analysis of Algorithms, Game Theory and Mechanism Design and more recently Bioinformatics, with applications in Genomics and Phylogenetics.

RESEARCH EXPERIENCE **Research Intern, Centre For Networked Intelligence** **June - July '22**
 Indian Institute of Science, Bengaluru, India **October '22**
 Guides: **Prof. Rajesh Sundaresan, Dr. Jagadish Midthala**

- Explored different Phylogenetic tree estimation strategies and tree rearrangements.
- Read about de Bruijn Sequences, de Bruijn Graphs, Euler Walks and their application to solving the Gene Assembly problem.
- Worked majorly on finding the optimal length (and other interesting properties) of Mirrored Multi-Cycle De Bruijn Sequences, a new variation we formulated based on the standard de Bruijn sequence.
- Submitted an article for publication based on one of the results on Mirrored Multi-Cycle De Bruijn Sequences to "At the Right Angles", a math magazine for high school students. We generalized the result and extended it to circular palindromes.

PROFESSIONAL EXPERIENCE **Software Engineering Intern, HealthMe** **August - November '21**
 London, United Kingdom (Remote)
 Supervisor: **Dr. Mohamed Alibashe**

- Worked on planning, designing and developing the HealthMe web application in ReactJS, which tackles the burden of medical documentation for doctors using NLP.

EDUCATION **SRM Institute of Science and Technology, Chennai, India**
 B.Tech., Computer Science and Engineering, June 2019 (expected graduation date: **May 2023**)

- Cum. GPA: 9.54 / 10

Kensri School Academy of Excellence, Bengaluru, India
 Grad. **May 2018**

- Subjects: Physics, Chemistry, Math and Computer Science

COURSEWORK **Computer Science Courses**

- Object Oriented Design and Programming
- Data Structures and Algorithms
- Design and Analysis of Algorithms
- Computer Organization and Architecture
- Operating Systems
- Advanced Programming Practice
- Software Engineering and Project Management

- Formal Language and Automata
- Compiler Design
- Computer Networks
- Database Management Systems
- Computational Logic
- Artificial Intelligence
- Probability and Computing (**Extra Credit - Prof. N R Aravind, IIT Hyderabad**)

Mathematics Courses

- Calculus and Linear Algebra
- Advanced Calculus and Complex Analysis
- Transforms and Boundary Value Problems
- Probability and Queueing Theory
- Discrete Mathematics

LINKS	<p><i>URL:</i> Adithya Balachandra</p> <p><i>Github:</i> Addii45</p> <p><i>LinkedIn:</i> adithyabalachandra</p>
SKILLS	<p>Programming: C/C++, Python, Java, JavaScript, HTML/CSS, UNIX shell scripting</p> <p>Web Development: ReactJS, Node.js, Express.js, Flask, Django, MongoDB, SQL</p> <p>Frameworks: NumPy, Pandas, Matplotlib, TensorFlow, Keras, TuriCreate</p>
PROJECTS	<p>Mood Based Song Recommendation System October '20</p> <ul style="list-style-type: none"> • Used Transfer Learning (VGG-16) to train an emotion recognition model on the Fer-2013 dataset (Cut down to 3 classes - Happy, Neutral and Sad) • Built a song recommendation system using the SpotiPy API that creates a unique playlist of songs for each of the three moods predicted by the model. • Put everything together into a web application using HTML, CSS, Flask and OpenCV. The web app uses the webcam to capture video, predicts the mood and then creates a unique playlist of recommended songs on Spotify for that particular mood. <p>Course Project CSC206J (Software Engineering and Project Management): Project Health April – May '21</p> <ul style="list-style-type: none"> • Used Django to build a web application that creates a permanent record of medical histories of patients which can be viewed and updated by different hospitals/doctors once authorized by the patient. • Wrote a business plan, marketing brochure and evaluated costing details for commercial use.
CERTIFICATIONS	<ul style="list-style-type: none"> • Stanford University, University of British Columbia - Game Theory (<i>Coursera</i>) • University of Washington - Machine Learning Specialization (<i>Coursera</i>) • DeepLearning.ai - Neural Networks and Deep Learning (<i>Coursera</i>) • RedHat - Fundamentals of Red Hat Enterprise Linux (<i>Coursera</i>)
VOLUNTARY ACTIVITIES	<p>Senior Team Member – <i>GenY, Data Science and Machine Learning</i></p> <ul style="list-style-type: none"> • Routinely took part and assisted with activities related to the club which included paper readings, workshops and minor projects. <p>Associate – <i>Satoshi Lab, NextTech Labs</i></p> <ul style="list-style-type: none"> • Part of the Satoshi Lab that deals with blockchain and cryptography. <p>Senior Member – <i>Emcee Club, Directorate of Student Affairs</i></p> <ul style="list-style-type: none"> • Hosted multiple events for the University's Cultural Festival - Milan 2020

- Organized and hosted seminars that aimed to improve the communication skills and public speaking abilities of students from underrepresented parts of the country who may not have had access to better English medium schools.

REFERENCES
AVAILABLE TO
CONTACT

Dr. Rajesh Sundareshan (e-mail: rajeshs@iisc.ac.in; phone: +91 80 2293 2658)

- Dean, Electrical, Electronics, and Computer Sciences Division
- Professor, Electrical Communication Engineering
- Co-convenor, Centre for Networked Intelligence (CNI)
- Indian Institute of Science, Bengaluru
- ◇ ECE Department, Indian Institute of Science, Bengaluru - 560012

Dr. Jagadish Midthala (e-mail: jagadishm@iisc.ac.in; phone: +91 99 2023 6462)

- Specialist Technologist, Centre for Networked Intelligence (CNI)
- ◇ 325, Microelectronics and Photonics Building, Indian Institute of Science, Bengaluru - 560012

Dr. N R Aravind (e-mail: aravind@cse.iith.ac.in; phone: +91 040 2301 6356)

- Associate Professor, Department of Computer Science and Engineering,
- Indian Institute of Technology, Hyderabad
- ◇ B-205, Indian Institute of Technology, Hyderabad - 502284