

# SAI ASHISH SOMAYAJULA

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Passionate about Signal processing, Optimization and Deep Learning with a strong background in Algorithms and mathematics.

## EDUCATION

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**Bachelor of Technology**—Electrical Engineering with Minors in Computer Science and Engineering 2016-20  
Indian Institute of Technology, Hyderabad (IIT-H), CGPA : 9.55/10

**Class XI-XII** 2014-16  
Board of Intermediate Education, Telangana, 98.5%

**Class X** 2013-14  
CBSE board, CGPA : 10/10

## PUBLICATIONS

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Subbareddy, B., S. Sai Ashish, and Aditya Siripuram. "Towards A Theory of Duality for Graph Signal Processing." arXiv preprint arXiv:1911.08135 (2019).

## INTERNSHIPS

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**Texas A&M University, Halliburton Engineering Global Program Scholar** 2019  
*Dr. Dileep Kalathil and Dr. Srinivas Shakkottai*

- Developed a control algorithm for self-driving cars to navigate in a crowded environment using a pedestrian behavior model, which was developed using Inverse Reinforcement Learning.

**L.V Prasad Eye Institute - Engineering Center** 2018  
*Dr. Kiran Kumar Vupparaboina*

- Segmentation of Optic disc and Hard exudates in Fundus Images, Choroid layer in Optical coherence tomography(OCT) images using Deep Learning Techniques. Developed a web portal for doctors to use the tools.

**Pressbury - Health care Start-up** 2017

- Developed a low power ECG monitoring device namely "CADENCE-ECG" that can interface with smartphones which is launched in the market.

## PROJECTS

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**Deep Reinforcement Learning for Communication Systems** 2019  
*Dr. Sai Dhiraj Amuru*

- Working on an end-to-end model for the MIMO system using Deep Reinforcement Learning techniques in the scenarios of noisy feedback and delayed feedback. Our model does not assume a known channel model.

**Duality in Graph Signal Processing** 2019  
*Dr. Aditya Siripuram*

- Defined a new metric - Dualness, a measure of closeness between graphs to being (signal processing) duals of each other and developed an algorithm to compute the dualness. Submitted the work to the IEEE ICASSP, 2020

**IITH-RU Project Based Learning Program** 2019  
*Dr. Ravikumar Bhimasingu and Dr. S.Suriya Prakash* *Ritsumeikan University-Japan*

- Among the ten students from IITH to work in a cross-culture program with Ritsumeikan University. Performed a case study analysis on the concept of AI and Blockchains for the power grid with three Japanese and one Indian student.

## UART, SPI Transceiver on FPGA

2019

*Dr. GVV Sharma*

- Implemented UART, SPI communication protocols on an FPGA[IcoBoard], useful for information exchange in low budget IoT systems.

## Low complexity ML decoder for Convolutional Codes

2018

*Prof. Zafar Ali Khan*

- Implemented the Bi Directional Priority First Search Algorithm for decoding tail biting convolutional codes as a part of the Error correcting codes course.

## Soldier Support, Inter IIT Technical meet

2017

- Worked on a problem statement given by Defence Research and Development Organisation, India to upgrade the gear of soldiers. We secured the sixth position in this challenge.

## Teaching and Learning Centre - IIT Hyderabad

2017

*Dr. GVV Sharma and Dr. J.Balasubramaniam*

- Contributed to some of the TLC(Teaching and Learning Centre) papers by the Indian Institute of Technology, Hyderabad on [Digital Modulation Techniques](#), [Functional Series](#), [Continuity](#)

## ACCOLADES

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|---|---------|
| - In the top five Highest CGPA of the Institute among all branches.                               | current |
| - Academic Excellence Award for the Highest CGPA in Electrical Engineering.                       | 2019    |
| - Achieved <i>Microsoft Azure Award</i> in “Engineering the Eye-2018 hackathon”                   | 2018    |
| - Represented IIT-Hyderabad in the prestigious Inter-IIT Technical meet and secured 6th position. | 2018    |
| - Academic Excellence Award for the Highest CGPA in freshman year.                                | 2017    |
| - Runners-up in PWC challenge with theme as “Smart Cities”- Megathon.                             | 2017    |
| - Class X - Overall Topper Award.   | 2014    |
| - Bronze medal in National Science olympiad.  | 2012    |

## TEACHING ASSISTANT

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Vector calculus, Introduction to AI and ML, Representation Learning, and Probabilistic Graphical Models.

## EXTRA CURRICULAR ACTIVITIES

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### Co-Founder of College Counsel

2017

A start-up that helps a JEE (the exam to be cleared for admission to the IIT) qualified student choose a branch they are suited for according to their rank and interest.

### Head of Elektroica—*Electronics and Signal Processing Club of IIT-H*

2018

A student activity club aimed to foster the culture of critical thinking and innovation in technology among students.

### Head of Marketing Team—*Entrepreneurship Cell of IIT-H*

2018

Head of a team that captivates investors to invest in fresh ideas for start-ups from students.

## SKILLS

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**Languages/Python Libraries**  
**Softwares/OS**

C, C++, Python, SQL, HTML, Keras, Tensorflow, Numpy, OpenCV  
Matlab, Scilab, Octave, L<sup>A</sup>T<sub>E</sub>X, Microsoft Office, Windows, Ubuntu