SAI KRISHNA CHARAN DARA

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EDUCATION

B.Tech (Hons) in Electronics and Communication Engineering

International Institute of Information Technology

📅 2017 – 2021   📍 Hyderabad, India

RESEARCH PROJECTS

IoT for air pollution monitoring | *Python, Pandas, Seaborn*

- Analyzed data collected by pollution monitoring nodes deployed in IIIT campus.
- Used machine learning techniques such as Parallel coordinates, Pair-wise correlation matrix, Correlation heatmap, Joint plots and other Spatial interpolation techniques.

Fast DoA Estimation of Multiple targets using deep learning and sparse arrays | *MATLAB*

- Used denoising autoencoder (DAE) that predicts a statistically richer version of the sampled covariance matrix that is subsequently used for the DoA estimation using Maximum Interelement Spacing Constraint Array (MISC) with small number of snapshots.

PROJECTS

Style Transfer for Headshot Portraits | *MATLAB, Python*

- Presented a technique to transfer the style of an example head-shot photo onto a new one.
- Used Multi-scale technique to robustly transfer the local statistics (local contrast and the overall lighting direction) of an example portrait onto a new one.

Universal Style Transfer via Feature Transforms | *PyTorch*

- Objective is to develop a universal style transfer approach with a decent visual quality and efficiency.
- Used VGG-19 as feature extractor.

Multi Dimensional Divide and Conquer

- Used this paradigm to solve domination and closest point problems in k-dimensional space and performed complexity analysis.

File sharing protocol between client and server | *Python*

- File sharing protocol is created between client and server using socket programming.
- Functionalities like Indexed searching, File hashing(using MD5 checksum), File transfer(UDP and TCP) and caching are implemented.

Face Classification | *Python*

- Performed data reduction techniques like PCA, LDA and build classifier using Multi Layer Perceptron (MLP) for distinguishing image classes.

Interactive shell | *C*

- Developed a user-interactive shell in C, implementing the major features of GNU/Linux shell like piping, redirecting, handling background and foreground processes.

Insertion Sort on FPGA | *Xilinx-Vivado*

- Implemented accelerated Insertion sort on FPGA (Zedboard Zync-7000).

EXPERIENCE

System Software Engineer
Nvidia

📅 July 2021 - Present   📍 Pune

- Audio SDK and Nvidia broadcast team.
- Working on Deep Learning Audio and building SDK and Plugin for Nvidia RTX Audio.

Undergraduate Researcher
SPCRC, IIIT-Hyderabad

📅 2018-Present

- Working on Beamforming in mmWave technology and how it can be used for spectrum sensing in Cognitive Radio scenario under Prof. Sachin Chaudhari.
- Worked on research project *IoT Enabled Smart Cities: Pollution, Health and Governance* funded by Pernod Ricard India Foundation (PRIF).

Teaching Assistant
IIIT-Hyderabad

📅 Aug 2019 - May 2020

- Teaching Assistant for courses *Signal Processing* and *Communication Theory* (Twice).
- Handled tutorials and doubt clearing sessions for a class of **50+** undergrads.

PUBLICATIONS

- M.Madhuri Latha, **Sai Krishna Charan Dara**, Sachin Chaudhari, **"Beamformed Sensing using Dominant DoA in Cognitive mmWave Network"** accepted in IEEE-ANTS 2020
- M.Madhuri Latha, **Sai Krishna Charan Dara**, Sachin Chaudhari, **"Beamformed Energy Detection in the Presence of an Interferer for Cognitive mmWave Network"** accepted in IEEE-VTC Fall 2021 Conference
  Link:- https://arxiv.org/pdf/2007.15974.pdf

TECHNICAL SKILLS

- Python, MATLAB, C, C++, Bash, System Verilog, Verilog, Basics of SQL.
- Pandas, Keras, Sklearn, RISC-V, BlueSpec.
- HTML, CSS, JavaScript.
- Xilinx-Vivado, LTSPICE, Multisim, Cadence-Virtuoso, QGIS, LaTeX.

RELEVANT COURSES

- Statistical Methods in AI, Computer System Organisation, Digital Image Processing, Algorithms and Operating Systems
- Communication Networks, Digital Signal Processing, Wireless communications.
- Data Structures, Computer Programming