Venkatakrishnan Sutharsan

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ACADEMIC QUALIFICATIONS

Master of Science in **Computer Engineering**   **Jan 2023 - Aug 2024**

Texas A&M University, College Station, TX

Coursework: Computer Architecture, Microprocessor System Design, Operating System, Machine Learning Engineering. Data Visualization, Law and Policies in Cybersecurity, Quantum Logic Synthesis.

CGPA - 3.3

Bachelor of Engineering in **Electrical and Electronics Engineering**   **Jun 2016 - Apr 2020**

SSN College of Engineering, Affiliated to *Anna University*, India.

CGPA - 8.16

EXPERIENCE

Texas A&M University, College Station, Texas, USA   **Mar 2023 – Jan 2024**

Mentored by : Prof. Jeyavijayan Rajendran - Associate Professor, Texas A&M University

❏ **Grader** - Digital System Design - ECEN 248 (Mar 2023 - May 2023)
❏ **Student Technician** (May 2023 - Aug 2023) - Helped in conducting Hack@DAC event at DAC 2023 Conference.
❏ **Grader** - Security of Embedded Systems - ECEN 426 (Aug 2023 - Jan 2024)

Project Associate, **Indian Institute of Technology - Madras - RISE Lab, Chennai, India**   **Jan 2021 – Dec 2022**

Mentored by : Prof. V Kamakoti - Director, IIT Madras

❏ Worked on developing Secure Hypervisor (Sec-V) for Shakti Processor which is based on RISC-V Architecture.
❏ Developing device drivers specific to Shakti based SoC in bare-metal programming, bootloaders and Linux Kernel.
❏ Workshops held for Students and working professionals on using Shakti Microprocessor.
❏ Presented to various Government Ministries and Organizations about Shakti Processor.
❏ Mentored/Guided Master's students on their Master's Thesis Project.

Backend Web Developer, **Corporeal Health Solutions Ltd.**   **Nov 2020 – Jan 2021**

❏ Worked on Python for Backend Web Development using Flask. Worked on SQLite3 and PostgreSQL Databases.
❏ Analytics/Data Handling of User Data for Chest X-Ray based COVID-19 Detection.
❏ Data Security for Databases(Database Encryption and Hashing Sensitive Information).
❏ Automation of Forgot Password Mails and Registration Mails. Gallery handling from backend.

Project Intern, **Council for Scientific and Industrial Research, Chennai, India**   **Dec 2019 – June 2020**

Mentored by : Dr. Madan Kumar Lakshmanan, Senior Scientist, CSIR - CEERI, Chennai.

❏ Lead my team on a project to denoise Electroencephalogram (EEG) signals.
❏ Created a classifier to classify Cognitive Stress (such as words like *COLLEGE, LAB*) in the brain using Deep Neural Networks.
❏ Worked on a data acquisition system for EEG data collection and processing.

Trainee, **Council for Scientific and Industrial Research, Chennai, India**   **May 2019 – June 2019**

Guided by : Dr. Madan Kumar Lakshmanan, Senior Scientist, CSIR - CEERI, Chennai.

❏ Worked on a project on Signal Processing Techniques for Electroencephalogram (EEG).
❏ Studied various kinds of Internal and External Noise Interference.
❏ Studied source estimation techniques like Independent Component Analysis.
❏ Implemented source estimation algorithm (FastICA) using python for artifact removal.

PAPER PUBLICATIONS

Title: Electroencephalogram Signal Processing with Independent Component Analysis and Cognitive Stress Classification Using Convolutional Neural Networks
Publisher: Lecture Notes in Networks and Systems (2022)
        Vol 341. Springer, Singapore.

Title: Design of Microcontroller Based Wireless Controlled Animatronic Hand
Publisher: International Journal of Advanced Science and Technology (2020)
        Vol. 29, No. 9s, (2020), pp. 3715-3724

ACADEMIC PROJECTS

Title: PLC Fuzzing on BeagleBone Black (Thesis Project for Masters)
Period: Aug 2023 – Present
Team Size: 2

❏ Working with BeagleBone Black on various levels including software and hardware to test and validate the physical design of the PLC to avoid vulnerabilities.

Title: Electroencephalogram Signal Processing using Independent Component Analysis to classify Cognitive Stress
Period: May 2019 – June 2020
Team Size: 3

❏ Project on Electroencephalogram Signal Processing using Independent Component Analysis to classify Cognitive Stress

Title: Design of Microcontroller Based Wireless Controlled Animatronic Hand
Period: June 2017 – April 2018
Funded by SSN Innovation Centre
Team Size: 6

❏ A wirelessly controlled animatronic hand using Arduino and HC - 05 bluetooth for the application of bomb defusal, chemical usage and prosthetic arm.

Title: Satellite Weather receiver using MC3362
Team Size: 2
Period: January 2015 – May 2015

❏ Development of a low cost satellite weather receiver to acquire image signals from satellites launched by National Oceanic and Atmospheric Administration(NOAA) for weather forecasting.
❏ Received signals from NOAA satellites and decoded APT Images using WxToIMG. Utilized pre-built Tall narrow QFH antenna.

TRAININGS & CERTIFICATIONS

❏ CAD for VLSI - IIT Madras - CS6230 - **Grade : B**
❏ Advanced Data Structures and Algorithms - IIT Madras - CS5800 - **Grade : B**
❏ Foundation to Computer System Design - IIT Madras - NPTEL (Gold Medalist)
❏ Computer Networks and Internet Protocol - IIT Kharagpur - NPTEL (Silver Medalist)
❏ Neural Network and Deep Learning - deeplearning.ai.
❏ Improving Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization - deeplearning.ai.
❏ Structuring Machine Learning Projects - deeplearning.ai.
❏ Convolutional Neural Networks - deeplearning.ai.
❏ Sequence Models - deeplearning.ai.
❏ Mathematics for Machine Learning: Linear Algebra - Imperial College London.
❏ Mathematics for Machine Learning: Multivariate Calculus - Imperial College London.
❏ Mathematics for Machine Learning: Principle Component Analysis - Imperial College London.

- [Machine Learning with Python - IBM.](#)
- [COVID - 19 Contact Tracing - Johns Hopkins University.](#)
- [Programming for Everybody (Getting Started with Python).](#)
- **Certified Amateur Wireless Station Operator**, issued by the Ministry of Communication & IT, Government of India. August 2017.
- **Certificate Course in Management, Great Lakes Institute of Management**, Chennai, India. November 2015.\

AWARDS & ACHIEVEMENTS

- Successful completion and demonstration of Smart farm using IoT prototyping in the 24-hour intra-college Hackathon – Hackerspace 2019.
- [Winner at Short Film Contest conducted by the Election Commission of India. (2020)](#)
- Participated in Project Exhibition held on the occasion of SSN Innovation Day - 2019.
- Presented paper at SRM Easwari Engineering College on 'Electroencephalogram signals and noise reduction techniques' - 2019
- Completed 75KM endurance cycling (Gran Fondo) conducted by Track and Trail – 2018.
- Winner (First Place) in the prestigious National Science Exhibition conducted by the Central Board of Secondary Education held at Gurgaon, Haryana, for the project RAD-SATT (Satellite weather receiver using MC3362).
- Completed 200KM endurance cycling conducted by Tamil Nadu Cycling Club - 2014.
- Displayed "Stirling Engine" during project fest event at St. Joseph's College of Engineering - 2014
- Successful Completion of Dawn to Dusk Marathon - 2014
- Won second prize at Javelin throw at the Annual Sports meet - 2014, 2016.
- Participated in a 24KM cycling ride organized by Hercules Roadeo Chennai Cycling – 2013.
- Completed 100KM endurance cycling conducted by Tamil Nadu Cycling Club - 2013.
- International rank of 171 in National Science Olympiad - 2012.

EXTRACURRICULAR ACTIVITIES

- Photography - Since January 2014.
- Cycling - Since June 2013.