Gokul H

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Education ————

B.E. Electrical and Electronics,
SSN College of Engineering (SSNCE),
Anna University | 2019 | GPA:
8.41/10.0
Class XII,
Doveton Matriculation Higher
Secondary School | 2015 | 98.0 %
Class X,
Doveton Matriculation Higher
Secondary School | 2013 | 96.8%

Skills ——————

Languages: Python | C++ | C | Matlab
| Basics of Linux, C#, Java and VHDL.
Simulation : Simulink| Arduino | Psim
| Xilinx.
Others: Eagle| | Keras | TensorFlow |
LaTeX | MS Office | Git | Adobe
Photoshop.

Extra-Curricular —

Teaching Assistant @Solarillion
Foundation(SF)
- Teaching Machine Learning using
Python and Embedded C for juniors.
- Mentoring students in
undergraduate research and paper
writing.
- Handled a workshop on "How to
Pursue Undergraduate Research."

Teaching Assistant @ S4S Project
Lab, SSNCE Electronics Department
- Taught PCB designing with Eagle
and Arduino Programming for juniors.

Stage Crew Head @ Lights Out
Please, SSN English Theatre art Club
- Managed Stage Setups and crew
teams for 8 English theatre plays.

Research Works

May'19-Sep'19 — Gait Recovery System for Parkinson's Disease using Machine Learning on Embedded Platforms. *SF*
- Lead author of this paper.
- Involves optimal designing of a signal feature extraction engine, pipelined to a 2KB ML model to deploy in microcontrollers.
- Achieved a 1.3% efficiency trade-off with 400 times model size compression compared to state-of-the-art.
- Accepted by 14th IEEE SYSCON 2019, Montreal, Canada.

Aug'18-Feb'19 — Low-Cost Wearable Gesture Recognition System with Minimal User Calibration for ASL *SF*
- Proposes a rule-based decision system for a sensor-embedded, easy user-adaptable sign-language interpreting glove.
- Published by 12th IEEE iThings 2019, Atlanta, US. (doi: 10.1109/iThings/GreenCom/CPSCom/SmartData.2019.00185)

Projects

Apr'19-Jun'19 — EMI-RNN - Faster Recurrent networks for sensor data patterns *SF*
- Study of Recurrent Neural Networks(RNN) incorporated with Early prediction & Multiple Instance Learning (EMI) concepts vs standard RNN counterparts.
- On-device testing results with Raspberry Pi, showed several 100ms lower latency without compromising in efficiency, thus improving device scalability of RNN models.

Feb'19-Apr'19 — Solving Device Heterogeneity in Phone Activity recognition (AR) *SF*
- Accelerometer signal-preprocessing with decimation and wavelet transform techniques, trained in an LSTM- CNN stacked neural network architecture to tackle device heterogeneity problem in AR.
- User adaptability was improved with transfer-learning techniques.

Jan'19-Mar'19 — Human-Robot Interactive Systems for a 3 DOF Robotic Arm *SSNCE*
- Designed inertial sensor (IMU) based and mono-vision based motion-tracking systems to interface with a 3DOF robotic arm.
- Addresses 3D object-motion tracking, Inverse kinematics solutions, and Fitt's targeting experiments.

Oct'17-Nov'18 — Object Recognition Bot *SSNCE*
- Prototype real-time Object-Tracking Monocular Robot with Differential Motor Drive.
- Was designed for further improvisation to a Mono-vision SLAM (Simultaneous Localization and Mapping) project with ORB-SLAM algorithm.

Minor Projects

Nov'16 — 15KV Flyback Power Convertor for Small scale industrial Electrostatic Pollution control devices.

Apr'18 — Design of Aerothrust Pendulum with Feedback Linearization Techniques.

Jun'18 — Closed-loop PMDC motor speed control with PWM techniques.

Aug'18 — Sensor-fusion to solve yaw drift problem in Quadcopter inertial sensor applications

Awards

Oct'18 — Innovator of the Year 2017-2018 by IEEE ComSoc
- Proposed a study on feasibility and profitability for a futuristic non-invasive emotion sensing application for music industry.