ASHISH RAO MANGALORE

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EDUCATION

Master of Science in Neuroengineering (MSNE), *Oct 2019-Present*
Technische Universität München, München, Germany

Bachelor of Engineering in Electrical and Electronics *Aug 2012-May 2016*
R.V College of Engineering, Bengaluru, KA, India

INTERESTS

Brain Computer Interfaces, Prosthetics, Event Based Cameras, Signal Processing, Computational Neuroscience, Neural Engineering, Machine Learning, Robotics

PROJECT CONTRIBUTIONS

Implementation of Proximity Operators and ISTA in ELSA
- Contributed to ELSA, a tomographic Reconstruction software developed at the Department of Informatics, TUM (https://gitlab.lrz.de/IP/elsa)
- Designed, Implemented and tested Proximity Operators (Soft-Thresholding), LASSO problem and the ISTA Solver in C++

Maintainer of TUMBrain
- Maintaining and Architecting a software repository developed at ICS, TUM for EEG signal classification to control game avatars

PROFESSIONAL EXPERIENCE

Visiting Researcher *Oct 2020-Dec 2020*
Max Planck Institute for Brain and Research, Frankfurt Am Main

- Working on plasticity in Inhibition Stabilized recurrent networks with noisy inputs in Prof. Dr. Julijana Gjorgjieva's group.

Teaching Assistant for Neurorehabilitation *Jul 2020-Dec 2020*
Institute of Cognitive Systems, Technische Universität München

- Design Tutorials for the neurorehabilitation course
- Sourcing of materials for building a robotic exoskeleton for rehabilitation
- Designing experiments with hardware and software for the exoskeleton

Research Assistant *Sept 2018-Oct 2019*
Indian Institute of Science, Bengaluru

- Research on 3-D Object Reconstruction Methods with Neuromorphic Cameras with Prof. Chandrasekhar Seelamantula and Prof. Chetan Singh Thakur. Developed a new method using structured light which was faster than the SOTA by a factor of n. (https://github.com/ashishrao7/NFPP)
- Contributed to preliminary experiments on a Sampling theory for Neuromorphic Sensors

Associate Software Engineer *Sep 2016-May 2018*
Robert Bosch Engineering and Business Services, Bengaluru

- Carried out energy analytics for industrial plants.
- Planned and ran analyses for optimizing the energy consumption of plants
- Worked on demand forecasting using LSTMs to help stakeholders estimate energy to be purchased for the next day.
- Automated processes to generate and keep track of part numbers for the machine building team.

Intern — ***Jan 2016-Apr 2016***
Robert Bosch Engineering and Business Services, Bengaluru

- Worked on reducing error in solar panel temperature predictions. Developed models using regression and ANNs.
- Developed a workflow to visualize the trend of the collected data points available at each second throughout the day using MATLAB and Simulink.

PUBLICATIONS

A. Rao Mangalore, C.S. Seelamantula, and C.S. Thakur, "Neuromorphic Fringe Projection Profilometry", Signal Processing Letters, September, 2020

A. B. Harish, G. M. Deepak, **A. Rao Mangalore**, and C.S. Seelamantula,"Depth Estimation using the Riesz Transform", To be submitted to IEEE Transactions on Computational Imaging

R. Vijaykumar, R. Rudramoorthy, and **A. Rao Mangalore,** (2017). Prediction of solar PV panel temperature using mathematical models and artificial neural networks. Journal of Computational and Theoretical Nanoscience 14, 4986–4997.

HONORS & AWARDS

Deutschland Stipendium, TU München — ***2020-2021***
Merit based Scholarship for talented and high-achieving students at public and state recognised universities in Germany

Invited Speaker SPCOM 2020 - International Conference on Signal Processing and Communications — ***Jul 2020***
Talk titled "Object Scanning and the Dynamic Vision Sensor"

1st IEEE Brain BR41N.IO Prize at BR41N.IO Brain-Computer Interface Designers' Hackthon 2020 — ***Jun 2020***
Awarded 1st Place in the Programming Projects category of the hackathon for our solution VibeLight.

3rd in the Graduating Batch of EEE, RVCE — ***2016***
Placed 3rd on the basis of 4 year CGPA at the end of the undergraduate course among the graduating batch of 63 students

4th in Sparkfun Autonomous Vehicle Challenge — ***Jul 2015***
Placed 4th in the autonomous vehicle challenge organized by spark fun electronics at Denver, Colorado

40th at DBF 2015, AIAA — ***Apr 2015***
Represented the College Aerodesign team at the Prestigious Design/Build/Fly 2015 contest organized by AIAA in Tucson, Arizona. Finished 40th out of 100 teams

TECHNICAL

Programming Languages	*Python, C++17, C, Matlab*
Frameworks	*Pandas, Keras, Pytorch, ROS*

SKILLS

Computer Aided Design	*Autodesk Fusion 360, EagleCAD*
Other	*ArduPilot, Arduino, Raspberry Pi Git, LaTeX*

EXTRA-CURRICULAR ACTIVITIES

Avionics Engineer — ***Apr 2013-May 2016***
Project Vyoma, Aerodesign Team, RVCE

- Made unmanned arial vehicles (fixed-wing and rotory) flight ready.
- Deployed autonomous UAVs (fixed-wing and rotory) using the Ardupilot/ Pixhawk platform.
- Carried out conceptual design of a solar powered fixed wing UAV which was later fabricated in the workshop and tested.
- Built and deployed arial photography ready drones to be be used for filming RVCE's college fest.
- Built a thrust rig to test thrust generated by different motor-propellor combinations
- Participated in international competitions representing the college.

Mentor and Avionics Team Lead — ***Aug 2014-May 2016***
Project Vyoma, Aerodesign Team, RVCE

- Oversaw day to day activities of the electronics subsection of the team
- Mentored new recruits to the team and oversaw their development
- Interacted with sponsors to raise funding for the operation of the team

COLLEGE SERVICE

Buddy Program Co-ordinator — ***Aug 2020-Nov 2020***
Institute of Cognitive Systems, TUM

- Facilitating integration of freshmen joining the Master of Science in Neuroengineering at TUM in the winter of 2020

Student Placement Co-ordinator — ***Aug 2015-Jun 2016***
Dept of Electrical and Electronics Engineering, RVCE

- Co-ordinated between students of Electrical & Electronics Engineering and the Placement Dept of RVCE for the smooth functioning of the placement process.
- Managed hosting of visiting employers, scheduling of events and addressed concerns and grievances of all parties involved in the placement process.

CERTIFICATIONS

Reinforcement Learning — ***Aug 2018-Dec 2018***
(Center for Continuing Education, IISc)

Deep Learning Specialisation — ***2018***
Coursera

Machine Learning Engineer Nanodegree — ***2017***
Udacity

Build a Modern Computer from First Principles: From Nand to Tetris — ***2017***
Hebrew University of Jerusalem, Coursera

edX Honor Code Certificate for Circuits and Electronics — ***2013***
edx:MITx

edX Honor Code Certificate for Electricity and Magnetism — ***2013***
edx:MITx

LANGUAGES KNOWN	**English**	*Native or bilingual proficiency*
	German	*A2 Level Proficiency, Certified by Göethe Institut*
	Kannada	*Native or bilingual proficiency*
	Hindi	*Professional working Proficiency*