

Asha Sankar Ramalaxmi

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SUMMARY

Passionate about using acquired technical skills to make meaningful contributions in the healthcare sector. Has a variety of technical expertise ranging from electrical - electronics engineering to software and data science. Has work authorization in the US, valid till 2023.

EDUCATION

University of Minnesota, Twin Cities *August 2018 - September 2020*
Master of Science, Biomedical Engineering
National Institute of Technology, Tiruchirappalli (REC) *July 2014 - May 2018*
Bachelor of Technology, Electrical and Electronics Engineering

SKILLS

Languages: C, C++, Python, MATLAB, HTML, CSS, JavaScript, SQLite
Simulations: PSpice, TINA, Weka
Neuroscience: OpenVibe, ITK Snap, Human Cicerone

RESEARCH EXPERIENCE

Research Assistant, Computational Visual Neuroscience Lab, CMRR, UMN *April 2019 - August 2020*
• Used statistical simulations to show good pre-processing techniques can improve the Signal to Noise Ratio (SNR) of fMRI data (increase the noise ceiling to 55% (on average)) in MATLAB.
• Led a team of three and developed NSD Face-Word Annotations as a part of the Natural Scenes Dataset extensions.
• The stimulus images were taken from Microsoft's COCO Dataset and their ground truth was automatically and semi-automatically established using human raters and Deep Neural Networks, for both faces and words.
• Text Detection in the Wild - Using EAST (An Efficient and Accurate Scene Text Detector) algorithm the text in 73000 images was automatically annotated in Python, thus saving 608 human hours (approx. required for manual annotations).
• Further body annotations and the foreground maps were generated from the annotations made available by Microsoft COCO.

Research Assistant, Hardware and Embedded Systems Lab, Nanyang Technological University *May 2017 - July 2017*
• Designed an online neurofeedback system (real-time GUI) that can be employed as a generic familiarization protocol to improve EEG signals during the actual Brain-Computer Interface applications.
• The online neurofeedback BCI system was developed in Python and EEG data was collected from a research-grade 32- channel EEG amplifier.
• The system was tested for 5 sessions. Offline analyses revealed the learning curve for normalized alpha/theta and alpha/beta ratios, with a 40% spike from session 2 to the following sessions in the test trials. [Developed and documented the code].

EXTRACURRICULARS

• Presented a talk at the Department of Psychology, UMN - **Developing quantifiable stimulus information in Natural Scenes (NSD)**.
• Presented a research poster on **Stability and Quality of Single Trial Estimates of Natural Scenes Dataset** at Algonauts, MIT.
• NTU-India Connect Program Fellow (May 2017 - July 2017). Selected as one of 50 people nationwide to do a summer project at Nanyang Technological University, Singapore, during which developed the BCI familiarization GUI.
• Research Science Initiative - Chennai, IIT Madras Fellow (April 2013 - June 2013). Selected as one of the top 30 students in the city for doing a summer research camp at the Indian Institute of Technology, Madras, in which designed a feed forward back propagation ANN model (in Matlab) inspired from the visual information processing that occurs in human visual cortex.

COURSEWORK

Object Oriented Data Structures in C++	Programming with C	Data structures and Algorithms	Biomedical DSP
Microprocessors and Micro-controllers	Pattern Recognition	Computational Vision	Artificial Neural Networks
Bioelectronics and Microsystems	Neural Engineering	Analog and Digital Electronics	Introduction to Data Mining