ANUKRITI SINGH
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EDUCATION

BANASTHALI UNIVERSITY, Jaipur India *Bachelors of Technology*, July 2016-Jun 2020
Relevant Coursework: Analog Integrated Circuit | Control System | Robotics | Digital signal processing | Electric drives and Controls | Data Structures | Digital Electronics | Pattern Recognition and Image Processing | Object Oriented Programming | Computer Organization and Architecture.

RESEARCH EXPERIENCE

University of Oregon, Eugene, Oregon Feb 2020-Present
Visting student researcher working on Visual Grounding techniques, Image and Video Captioning under the guidance of Prof. Humphrey Shi, SHI Lab.

Indian Institute of Science Education and Research (IISER), Pune May 2019-July 2019
Worked on integrating Artificial Intelligence with Quantum Computing. Simulated different quantum problems on machine learning architectures. Internship was under Prof. T S Mahesh, NMR Lab.

National Institute of Technology, Jaipur May 2018- Present
Worked on Convolutional Neural Network and applications of image processing. The internship was under Prof. Rajesh Kumar, RAMAN Lab**.**

PROJECTS

Visual Grounding and Captioning(Python) Feb 2020-Present
Studied one stage approach in solving visual grounding on Flickr30K, finding a common ground between image captioning and visual grounding. Dense image captioning using fasterRCNN with ResNet as backbone.

Discord in a qubit (MATLAB) May 2019-July 2019
Implemented Restricted Boltzman Machine (RBM) architecture to find out the presence of discord in a ½ spin Quantum System. RBM is based on regeneration of outputs, in our case, the architect was trained to calculate discord for unknown quantum state.

Automatic Machine Vision Inspection System (Python) Jan 2019-March 2019
Target was to solve manual inspection of trains. Convolution Neural Network implemented to make an inspection bot for finding the fault in spring of a fright train in Railways.

Dark channel processing for medical image enhancement (MATLAB) July 2018-Dec 2019
A new approach was studied and tested - called the dark channel algorithm for different medical images. The technique was tested on various dataset from digital retina image to rat's renal microscopic image.

GRMSprop (MATLAB) May 2018-July 2018
RMSprop is a famous learning algorithm to optimize gradient descent in deep learning. We modified RMSprop for better result with less epochs by reducing the loss ratio for each moving average weights of neurons in neural network. GRMSprop stands for GainRMSprop.

Dehazing Aerial Images (MATLAB) May 2018-June 2018
Dark channel prior and gamma correction technique was used to dehaze the aerial images captured by remote sensing devices, the technique was tested and compared with different datasets.

PUBLICATIONS

- Batra, P., Singh, A., & Mahesh, T. (2020). Characterizing Quantum Evolutions via a Recommender System. *arXiv: Quantum Physics*. (link)
- A. Chandra, A. Singh, R. Kumar, K. Singh and N. Dey, " Dark Channel Processing for Medical Image Enhancement," 2019 *5th International WIE Conference on Electrical and Computer Engineering (WIECON-ECE)*, Bangalore, 2019 yet to appear on IEEE Xplore (link)
- A. Chandra, A. Singh, R. Kumar and N. Dey, "Dehazing of Aerial Images by Dark Channel and Gamma Correction," *2018 3rd International Conference and Workshops on Recent Advances and Innovations in Engineering (ICRAIE)*, Jaipur, India, 2018 (link)

TECHNICAL SKILLS

- **Programming Languages**: C++, Python, MATLAB, Kuka programming language
- **Other Tools**: PyTorch, Programmable Logic Controller, LATEX
- **Development Platforms**: RaspberryPi, Arduino, Embedded Robotics

ACHIEVEMENTS

- Highest score for 8th semester project thesis.
- Selected for IISER Pune summer project program which had acceptance rate of 8%
- Highest score in Department for Seminar presentation in 6th semester
- Certified for Smart India Rajasthan Hackathon’18
- Qualified as a delegate in IEEE Congress meets (AISYWC'17)
- Secured 3rd position at IETE Quiz'17 at Banasthali University

EXTRA-CURRICULAR ACTIVITIES

- Author at https://feminisminindia.com/
- IEEE (Institute of Electrical and Electronics Engineers) Member
- IETE (The Institution of Electronics and Telecommunication Engineers) Member
- Core team member, Electronics Club (Samarthya), Banasthali University