Prithvijit Chattopadhyay

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EDUCATION

DTU
Delhi Technological University
B.Tech in Electrical Engineering
2012-2016 | Delhi, India
CPI: 81.30

K.V. GOLE MARKET
Grad. May 2012| Delhi, India

LINKS

Github:// **Prithvijit**
LinkedIn:// **Prithvijit**

RELEVANT COURSEWORK

Advanced Analog Circuit Design
Digital Electronics
Microprocessors
Network Analysis and Control Systems
Pattern Recognition and Machine Learning
(Research Asst. & Teaching Asst)
Electrical Drives

SKILLS

PROGRAMMING
C++ • Python • Matlab • Lua • LaTeX
Shell • Javascript • CSS • PHP

SOFTWARE
Caffe • Torch • Keras • TensorFlow
ROS • PCL • OpenCV • Qt • Spark
CUDA

PUBLICATIONS

- DTU AUV ROBOSUB Journal, AUVSI Journal 2013
- Passive Source Linear Localization Algorithms using Range Approximation methods, IOTA IEEE DTU 2014

ARXIV

- Counting Everyday Objects in Everyday Scenes

RESEARCH INTERESTS

Deep Learning, Computer Vision, Artificial Intelligence, Robotics

- I am interested in the study of Scene Understanding Problems
- I am also interested in the interpretability aspect of Deep Learning Models

RESEARCH EXPERIENCE

CVMLP LAB VIRGINIA TECH | Research Assistant

June 2015 – Present | Blacksburg, VA
Working with Prof Devi Parikh and Prof Dhruv Batra, currently visiting researchers at Facebook AI Research, on Semantic Scene Understanding Problems.

- Counting Everyday Objects in Everyday Scenes - We study the numerosity of object classes in natural, everyday images. We utilize the property of subitizing and propose a novel contextual counting model. Paper out at https://arxiv.org/pdf/1604.03505v2.pdf
- Scene Graphs - Building structured representations of images for Visual Question Answering and Visual Dialogue. Building Neural Structured Prediction models that output structured objects with end-to-end backprop
- EvalAI - An open source platform to host AI challenges. Supported by CloudCV, we shall be hosting the VQA Challenge for CVPR 2017. I am writing the backend code for parallelized evaluation corresponding to the challenge metrics using Map-Reduce Techniques

RRC IIIT HYDERABAD | Research Intern

Dec 2014 – Jan 2015 | Hyderabad, INDIA
Worked with Prof K Madhava Krishna. We implemented an efficient strategy for a robot to explore, discover, recognize and navigate to a selected few objects among a number of objects scattered on the floor, based on guess from far and recognize from near strategy. Built software stacks on ROS (in C++) for efficient machine navigation governed by vision.

IACS KOLKATA | Research Intern

Jun 2014 – Aug 2015 | Kolkata, INDIA
Worked with Prof Soumitra Sengupta. My specific focus was looking for Charged Rotating Black Hole Solutions in Einstein-Gauss-Bonnet Dilaton Coupled Gravity. I studied and simulated the conditions for existence of multiple horizons in constant scalar curvature f(R) gravity and acquired results demonstrating the convergence of event and cosmological horizons.

AUTONOMOUS UNDERWATER VEHICLE DTU | Undergraduate Researcher

Aug 2012 – Aug 2016 | Delhi, INDIA
Worked with Prof R K Sinha.

- Underwater Acousitcs - Developed and Implemented Range Estimation Algorithms for Passive Source Localization from TDOA values in conjunction with Machine Vision Techniques.
- Control Systems - Designed control modules of the AUV. Implemented simultaneous PID loops to maintain orientation of the AUV.

PROJECTS

DELHI TECHNOLOGICAL UNIVERSITY | Undergraduate Major Project

Spring 2016 | New Delhi, India

Implemented several baseline Visual Question Answering (VQA) Models and compared their performances.

- Started off as building models to answer the 'how many?' questions and implemented a DeepDream-based qualitative experiment using GoogleNet to study the compositionality characteristics of counting models. Given a base image, used the DeepDream framework to generate images for a given class and studied the count variations of related classes
- Implemented the VQA - LSTM + CNN baseline model, Hierarchical Co-attention and subsequently the then state-of-the-art Multimodal Compact Bilinear Pooling VQA and Visual Grounding model in torch and prepared demonstrations using Django and PyTorch

DELHI TECHNOLOGICAL UNIVERSITY | Undergraduate Minor Project

Spring 2015 | New Delhi, India

Implemented a multi-stage pipeline for scene understanding using Scene Classification and Video Magnification Techniques (Setup from CSAIL MIT) as a minor project during coursework. Different Stages included basic scene classification techniques using GIST features followed by superpixeling to detect and identify objects and using video magnification to study subtle movements

DELHI TECHNOLOGICAL UNIVERSITY | Undergraduate Minor Project

Fall 2014 | New Delhi, India

Attempted a solution to the Rendezvous Problem in robotics using curve-evolution techniques. The idea being to study the state-space evolution of agent coordinates in the field when the curve joining them is subjected to the curve-evolution equation. Prepared demonstrations for the same in MATLAB

AWARDS

2013	Semi-Finalists	ROBOSUB - AUVSI
2013	Finalists	NIOT SAVe
2012-14	Awarded	Merit Scholarships for Academic Performance
2012	Selected	KVPY and INSPIRE Fellowship
2013	National Top 1 percent	INPhO Physics Olympiad
2012	Selected among 22 students all over the country	B.Stat course at Indian Statistical Institute
2010	Selected	CSIR Programme for Youth Leadership in Science

EXTRA-CURRICULARS

2013-2016	Member	Astronomy Club DTU
2012-2016	Member	Corporate Team DTU-AUV
2012-2016	Member	IEEE DTU

INTERESTS AND HOBBIES

Astronomy	Astro-photography
Playing Tabla	(Indian Percussion Instrument)
Critical Analysis	Movies and Plays