

Arnab Ghosh

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PUBLICATIONS

Multi Agent Diverse GANs

A.Ghosh, V.Kulharia, V.Namboodiri, P.Torr, P.Dokania

arxiv:1704.02906

Message Passing Multi Agent GANs

A.Ghosh, V.Kulharia, V.Namboodiri

arXiv:1612.01294

Contextual RNN-GANs for Abstract Reasoning Diagram Generation

A.Ghosh, V.Kulharia, A.Mukerjee,

V.Namboodiri, M.Bansal

AAAI 2017

The Application Slowdown Model

L.Subramanian, V.Seshadri, A.Ghosh,

S.Khan, O.Mutlu

MICRO 2015

RESEARCH INTERESTS

Deep Learning, Computer Vision, NLP

SKILLS

PROGRAMMING

Over 5000 lines:

Torch • Python • R • Java • Shell Script

• JavaScript • Octave

• Perl • \LaTeX • Android

• C • C++ • MySQL • GNUPlot

EDUCATION

IIT KANPUR

BTECH IN COMPUTER SCIENCE

Graduated: July 2016 | Kanpur, IN

Major CPI: 9.0 / 10.0

COURSEWORK

UNDERGRADUATE

Probabilistic Machine Learning

Kernel Methods in Machine Learning

Machine Learning Tools & Techniques

Cognitive Science

Applied Probability and Statistics

Approximation Algorithms

Functional Programming

Probability And Statistics

Operating Systems

Theory Of Computation

Discrete Mathematics

Abstract Algebra

Real Analysis

Complex Analysis

Linear Algebra

Databases

EXPERIENCE

OXFORD UNIVERSITY | INTERN ADVISED BY PROF. PHILIP TORR

Jan 2017 – Present | Oxford, UK

- Designing multi agent generative models with message passing and mode specializing capabilities based on Game Theoretic Principles
- Designing and analyzing experiments to figure out failure cases of Generative Models

WE CREATE PROBLEMS | RESEARCH INTERN

Nov-Dec 2016 | Bangalore, IN

- Designed a model to generate questions and answers from technical documentations which can be used for quicker assignment of projects based on skills of employees.
- Advised an intern to create automatic descriptions and summary of the code written for Business Analytics tools such as R.

TTI-CHICAGO | RESEARCH INTERN ADVISED BY PROF. MOHIT BANSAL

May 2016 – Sep 2016 | Chicago, USA

- Worked on Visual Question Answering using image graph techniques. Designed several models based on Dynamic Memory Networks, using both textual and visual features.

ADOBE RESEARCH | RESEARCH INTERN

May 2015 – July 2015 | Bangalore, IN

- Designed a model to estimate the viewers of a media story engaged in different activities & designed a predictive model to assist media companies to predict context & activity of the user while reading on a mobile device.

CARNEGIE MELLON UNIVERSITY | SUMMER UNDERGRADUATE

RESEARCH INTERN ADVISED BY PROF. ONUR MUTLU

May 2014 – July 2014 | Pittsburgh, USA

- Designed a model for estimating slowdown of a particular app when running alongside Co-Running threads using the Cache Access Rate.
- Wrote Synthetic Benchmarks which targeted a definite Memory Access Pattern which would cause interference to the test Applications.

RESEARCH & PROJECTS

- **Message Passing Multi Agent GANs:** Developed a variant of GAN with multiple Generators which pass messages among each other to get better generations.
- **Contextual-RNN-GAN:** Developed a new RNN learning framework using Generative Adversarial Networks for generating images evolving with time.
- **Deep-IQ:** Applied the Contextual-RNN-GAN based model for solving diagrammatic abstract reasoning section of IQ-Tests.
- **Neural-Jigsaw:** Designed a novel deep neural net based model for predicting the correct order of various images from a scrambled jigsaw puzzle.
- **Graph Kernels:** Successfully implemented the Graph Kernels: "Shortest Path Kernels" and "Random Walk Kernels" to compare the similarity between 2 arbitrary graphs.
- **Seizure Prediction:** Developed a model to efficiently predict epileptic seizures from the EEG data of an epileptic person.
- **Automatic Grader:** Coded up an automatic grading system to help professors identify clusters in case of relative grading and also better visualise the distribution.