Ameya Panse

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ameya-panse

EDUCATION

Indian Institute of Technology, Madras — **Chennai, India**
Bachelor of Technology — *July 2012 - May 2017*
Master of Technology

PUBLICATIONS

- **Imitation Learning on Atari using Non-Expert Human Annotations**
  Ameya Panse, Tushar Madhesia, Anand Sriraman, Shirish Karande
  Presented as a *Work-In-Progress* at *AAAI Conference on Human Computation and Crowdsourcing (HCOMP), 2018* [Link]

EXPERIENCE

- **Samsung Research Institute** — **Bangalore, India**
  Research Engineer — *July 2018 -*
  - Working in the Interactive Intelligence group.
- **Tata Research Development and Design Center** — **Pune, India**
  Research Engineer — *Oct 2017 - July 2018*
  - Part of the Deep Learning Solutions for Vision Team.
  - Focused on the Deep Reinforcement Learning solutions involving human interaction.
  - Also worked on Finding High Information Centers for Segmentation Data.
- **Adobe Systems** — **Pune, India**
  Research and Development Internship — *May 2015 - July 2015*
  - Worked on Detecting Malpractices in Online Examination by Co-Relating Multiple Data Streams
- **Hasura** *(formerly 34Cross)* — **Chennai, India**
  Software Engineering Internship — *May 2014 - July 2014*
  - Developed Saas modules for Database Operations
  - Android App Development : **Find-A-Kadai**, a crowd-sourced ratings app for street food vendors.

RESEARCH PROJECTS

- **Imitation Learning for Atari using Non-Expert Human Demonstrations** — *Jan - May 2018*
  Advisor: Dr. Shirish Karande — *[Link]*
  - Explored the problem of learning a policy by making use of crowdsourced data from non-expert humans.
  - **Key Insight** Imitation Learning techniques are used to address the cold start problem faced by RL techniques. However, collecting data from experts is expensive. For classification tasks, large amounts of data labels are obtained via crowdsourcing. However, this had not been explored in the RL framework.
  - **Key Challenge** Since the annotations are crowdsourced, they are unreliable. Each worker has his own skill level affecting the quality of his annotations. Rather than boost initial training phases by means of bootstrapping the demonstration data, we want the collected data to continuously guide the training of the policy.
  - Led the problem discovery, solution formulation and the coded the experiments myself in Tensorflow. We ran our experiments in the Atari Learning Environment available in the OpenAI Gym.
- **Neural Architecture Search for Transfer Learning** — *Ongoing*
  Project by Myself
  - Explored the ways to robustly make use of Transfer Learning technique by searching for the optimal deep network architecture.
  - **Key Insight** The features learned by the parent network might not be general enough and/or refined. Hence, the previous layer outputs of the parent network might and/or further layers in the child network be necessary for optimal performance.
  - Led the problem discovery, solution formulation and the coded the experiments myself in Tensorflow. I ran the experiments making use of the Efficient Neural Architecture Search architecture.

- **Pushing the Boundaries for Combinatorial Graph Isomorphism Algorithms** *Jan - May 2017*
  Advisor : Prof. Jayalal Sarma
  - Part of my Master's project at IIT, Madras.
  - Characterized Tinhofer graphs algebraically. Proposed and studied in detail, a new graph hierarchy based on Tinhofer's algorithm. Provided an efficient graph isomorphism algorithm for the lower classes in the hierarchy.
  - [Thesis Link]

TECHNICAL CONSULTANCY EXPERIENCE

- **Fastnext** *July - Dec 2016*
  Early Stage Technical Consultant
  - Worked with Fastnext in their early stages as a consultant for their Machine Learning solutions to Recruitment Platform

TEACHING

- **Advanced Data Structures and Algorithms** *July - Dec 2016*
  Instructor : Prof. Anurag Mittal
- **Languages, Machines and Computation** *Jan - May 2016*
  Instructor : Prof. B. V. Raghavendra Rao

OTHER PROJECTS

- **CoreSets for Optimal Distillation** *Jul - Oct 2017*
  Advisor : Dr. Shirish Karande
  - Designed and Developed an algorithm to find the CoreSet of a given Dataset. Made use of the Variational Auto Encoder-Decoder and applied found clusters in the feature space. Sampled from the clusters to find a CoreSet.
  - A deep model trained on the found CoreSet gives similar scores as trained on the entire dataset. Thus, we reduce the required storage capacity required for the dataset.
- **Compiler for MacroJava to MIPS Assembly**
  Instructor : Prof. Krishna Nandivada
  - MacroJava is a subset of Java extended with C-style macros
  - Six stage compiler – Macros expansion, Type Checking, IR Generation, IR Simplification, Register Allocation and Code Generation
- **Developed a smaller version of the game *Dangerous Dave*** [*Github*]

RELEVANT COURSES

- Convolutional Neural Networks for Visual Recognition
- Introduction to Machine Learning
- Modern Techniques in Theory of Computation
- Quantum Algorithms and Quantum Complexity
- Reinforcement Learning
- Deep RL Bootcamp
- Data Structures and Algorithms
- Algorithmic Algebra

SKILLS

- Languages : C/C++, Python (Tensorflow), Java, Haskell
- Basic Knowledge of : HTML, CSS, JS, SQL, Verilog

EXTRA-CURRICULAR ACTIVITIES

- Part of the IIT-Madras Football Team 2012 - 2017
- Completed the International Young Leader Course held by British Council of India