Last updated: May 26, 2018

Arkanath Pathak

Computer scientist and engineer with interests in AI and ML research

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INDUSTRY EXPERIENCE

Google, Mountain View, CA, USA — *Software Engineer*

November 2017 - Present

Working on the modeling part of the YouTube Video Ads team. Heavy ML exploration primarily to improve the performance of our classifiers able to predict whether videos are safe to serve ads. Also working on research projects with the Google Brain team related to adversarial perturbations for image models.

Google, Sydney, Australia — *Software Engineer*

September 2016 - November 2017

Worked with the Google Cloud Support team. Led the software development of multiple impactful projects. Also worked with the Google Brain team on a side project for predicting 3D object representations. Attended and participated in various ML education sessions within Google.

SKILLS

Machine Learning Research

TensorFlow and other ML libraries

Python, C++, SQL

Google Infrastructure/Tools

LANGUAGES

English, Hindi

PROJECTS

Predicting 3D object representations and Robotic Grasping

Side project in collaboration with Xinchen Yan, Honglak Lee and others from Google Brain

April - November 2017

We worked on ways to find 3D object representations from 2D views (NIPS 16 work on PTN) and using that to predict grasping points for an object from a 2d image. I have been responsible for running large scale experiments on the same. Was also responsible for opensourcing a tensorflow implementation of the NIPS 16 work.

Improving YouTube personalization using clustering of videos

Internship at Google, Bangalore. Mentored by Sumit Sanghai

May - July 2015

We explored new ways to improve YouTube user profiles by trying to find ways of modelling interests that are not well represented by Knowledge Graph entities (e.g. “70s music”). Towards this goal, we used clusters of videos as users' features. The input data for the clustering was derived from video correlations due to user co-watches. We tried k-means, HAC and LDA to generate video clusters. We built a simple video recommendation system using clusters as features. We had to deal with large amounts of input data, and thus, had to use compute clusters for distributing the tasks. Consequently, the project also involved heavy usage of distributed frameworks, like MapReduce.

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Clustering of mixed data by integrating fuzzy, probabilistic and collaborative clustering
Research project carried at Indian Statistical Institute, Kolkata. Mentored by Prof. Nikhil R. Pal

May - June 2014

We came up with a new algorithm for clustering data with both numerical and categorical attributes. Our work was published in International Journal of Fuzzy Systems.

A two-phase approach towards identifying argument structure in natural language
Bachelor's Project, IIT Kharagpur. Mentored by Prof. Pawan Gupta and Prof. Plaban Bhowmick

February 2015 - April 2016

The project was based on a relatively new research problem called Argumentation Mining. The task of automated identification of argument structure is difficult since it deals with the problem of natural language inference. Furthermore, in the case of arguments the relationship is much more complex. Our work was presented as a full paper at NLPTEA 2016, held in conjunction with COLING 2016.

PUBLICATIONS

Clustering of Mixed Data by Integrating Fuzzy, Probabilistic, and Collaborative Clustering Framework *PDF*

Arkanath Pathak and Nikhil R. Pal

International Journal of Fuzzy Systems, Volume 18, Issue 3, 2016

A Two-Phase Approach Towards Identifying Argument Structure in Natural Language *PDF*

Arkanath Pathak, Pawan Goyal and Plaban Bhowmick

Proceedings of the 3rd Workshop on Natural Language Processing Techniques for Educational Applications (NLPTEA 2016)

Learning 6-DOF Grasping Interaction via Deep Geometry-aware 3D Representations *PDF*

Xinchen Yan, Jasmine Hsu, Mohi Khansari, Yunfei Bai, *Arkanath Pathak*, Abhinav Gupta, James Davidson and Honglak Lee

Proceedings of International Conference on Robotics and Automation (ICRA), 2018

EDUCATION

Indian Institute of Technology, Kharagpur
Bachelors of Technology in Computer Science of Engineering

2012 - 2016

GPA - 9.4/10. Took various elective AI courses and was part of research projects mostly related to Machine Learning / Natural Language. Full list of courses taken available here. Was also actively involved in competitive programming during this time.

St. John's Senior Secondary School, Kota
Central Board of Secondary Education, Class XII (Physics, Mathematics and Chemistry)

2012

Secured 88.8% in CBSE board examination and a rank of 313 in IIT Joint Entrance Examination (JEE).

Lord Mahavira School, Noida
Central Board of Secondary Education, Class X

2010

GPA of 9.6 in CBSE board examination.

CREATIONS

Abwid

2015

AI bot which can answer public questions about the user.

FreshBackMac

2015

Simple mac app for wallpapers from multiple sources. Over 17 million wallpapers updates as of May 2018.

Music Walker

2015

Web app to listen to song stations using YouTube, Last.fm, Spotify APIs.

MwBot

2015

Facebook Messenger bot that can recognize your taste in music and suggest songs at customizable intervals.

Others: SleekArchive, GuessWho15, NowPlaying for iTunes, AutoLyrica for iTunes, JhonnyM

MISCELLANEOUS

- Attended Bay Area Deep Learning school, held at Stanford in 2016.
- Machine Learning course on Coursera by Andrew Ng. in 2013 with 100% grade.
- (Previously active) Competitive Programming profiles: Codeforces, TopCoder, CodeChef.
- Awarded with the KVPY Scholarship in 2010, around 200 selected for this merit.
- Selected in Regional Mathematical Olympiad from Delhi region in 2009 and 2010 (secured rank 8).
- Selected in National Standard Examination in Physics in 2011.
- Our team qualified for appearing in ACM-ICPC, Amritapuri in 2013 (rank 50) and 2014 (rank 30).