Anil Kag

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Ph.D. Applicant in Computer Science

Research Fellow
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Education

July'10-June'14	**B.Tech in Computer Science, Indian Institute of Technology Guwahati**	9.20/10
July'09-June'10	**Senior Secondary, M.P. Board of Education**	87.8%
July'07-June'08	**High School, M.P. Board of Education**	92.0%

Interests

Machine Learning, Large Scale Optimization, & Computer Vision

Publications

WSDM'18	**SwiftXML: Extreme Multi-label Learning with Label Features for Warm-start Tagging, Ranking & Recommendation** (*accepted*)
Authors	Y. Prabhu, A. Kag, S. Gopinath, K. Dahiya, S. Harsola, R. Agrawal, M. Varma
Description	Previous work on Extreme Classification had focused only on user features while completely ignoring label information. SwiftXML uses both user & label information to learn a partitioning leading to a classifier similar in scale to PfastreXML but better in performance. Results in 10% higher click-through rate & 31% lower bounce rate compared to existing algorithms in Bing Ads.
WWW'18	**Parabel: Partitioned Label Trees for Extreme Classification with Application to Dynamic Search Advertising** (*accepted*)
Authors	Y. Prabhu, A. Kag, S. Harsola, R. Agrawal, M. Varma
Description	This work focuses on learning a hierarchy of coarse to fine label classifiers, each trained on a small subset of data points. This improves the precision@1 by 5% and 10x smaller model size in comparison to PfastreXML. This achieves 20% higher click-through rate and 32% lower bounce rate compared to existing algorithms in Bing Dynamic Search Ads.

Work Experience

July'16-Present	**Research Fellow, Microsoft Research India, Bangalore**
Oct'14-July'16	**Software Development Engineer, Dynamics CRM Microsoft, Bangalore**
May'13-July'14	**Intern Software Development Engineer, Bing Microsoft, Hyderabad**

Major Projects

July'17-Oct'17	**Improving Bing Dynamic Search Ads (DSA) Recommendations**
Advisor	**Dr. Manik Varma, Senior Researcher, MSR India**
	Improving Bing DSA recommendations using Extreme Classification. Given an Ad landing page without any bid keywords, we were asked to predict potentially monetizable queries which can bring clicks. This resulted in 13.6% gain in click-through rate and 13% reduction in bounce rate.
July'16-June'17	**Improving Bing Text Ads Recommendations**
Advisor	**Dr. Manik Varma, Senior Researcher, MSR India**
	Improving Bing Text Ads recommendations using Extreme Classification. Given an Ad landing page with bid keywords, we were asked to predict potentially monetizable queries which can bring clicks. This resulted in 5% gain in click-through rate and 11% reduction in bounce rate.

Jan'17-June'17	**The Nature Conservancy Fisheries Monitoring** *Kaggle Challenge*
	This was an image classification problem, where given an image, we were asked to predict the type of endangered fish if there's one. I ranked among top 5% in the final evaluation.
July'15-June'16	**Interactive Service Hub (ISH) Performance Improvements**
Advisor	**Sunil A. Jagadeesh, Principal Develpment Lead, Microsoft Dynamics CRM Bangalore**
	Performance improvements in ISH including page load, application start-up, memory leaks and render cycles. This work helped bring down the load times by more than 50%.
July'13-April'14	**Live Streaming via Peer-to-Peer Overlay Network** *B.Tech. Thesis*
Advisor	**Dr. Diganta Goswami, Professor, IITG**
	Design of a hybrid topology for live streaming via peer to peer networking.
Source Code	`https://github.com/anilkagak2/HTopology/tree/master/OverSim/src/overlay/htopology`
May-July 2013	**Business Phone Extractor to enhance BING Local Search** *Summer Internship*
Advisor	**Ashish Shah, Principal Development Lead, BING Local Search Team (MSIDC)**
	Creating a phone annotator for en-IN market using set of regex & some other features.
July-Nov 2012	**Enhancements in Pintos Project**
Advisor	**Dr. Gautam Barua, Professor & Dr. Gopalan Sajith, Professor, IITG**
	Addition of features like priority schedular, userprogram calling procedures, syscall architecture, virtual memory & enhancements in file system.
Source Code	`https://github.com/anilkagak2/pintos.git`
July-Nov 2011	**IITG Intranet Search Engine & Add-on for Google Chrome** *IITG Hackathon*
	Created a search engine for indexing & look-up of content accessible only within the campus. This included academic forms, course materials, faculty web pages, etc.

Skill Set

Programming	C, C++, C#, Java
Tools	Matlab, GDB, LaTeX, Visual Studio, Eclipse, Git
Databases	MySQL
Scripting	Python, R, Octave, Bash, Batch
ML Tool kits	scikit-learn, Tensorflow, Keras, Caffe, CNTK, Spark

Some of my projects are hosted at `https://github.com/anilkagak2`

Academic Achievements and Experiences

- Ranked 4 out of 80 students in the Batch of 2014, Computer Science, IIT Guwahati
- Secured 1761 Rank in IIT-JEE, 2010 out of 450,000 students who appeared for the test
- Secured 1063 Rank in AIEEE, 2010 out of 1,000,000 students who appeared for the test
- Secured 102 overall Rank in MPPET, 2010 out of 250,000 students who appeared for the test
- Stood 6th in District Merit List for 10th MPBSE, Examination
- Stood 7th in District Merit List for 8th MPBSE, Examination
- Recipient of "Merit-cum-Means" scholarship provided by IITG in 1st & 2nd Year.

Extra-Curriculars

- Won 1st prize in IITG Hackathon 2011 for building Intranet search engine & addon for Google Chrome.
- Won 1st prize in coding competition (green ideas) in Kriti, 2013 for brightness controller.
- Won 1st prize in Kriti,2011 (Inter Hostel Technical Festival of IITG) for Robowars Competition.
- Won 3rd prize in Maglev Competition in Techniche,2010 (Annual Techno-Management Festival of IITG).
- Participated in Robocon-2011 held at MIT-Pune.