Deependra Singh

deependra230.github.io | deependra230@gmail.com | 650.471.2139

Research Interests

Computational Genomics, Data Mining, Machine Learning

Work Experience

Groupon — Palo Alto, CA

Research Scientist, *Search, Data Mining, Machine Learning, & Personalization* — Oct 2015 – Present

Responsible for enhancing and integrating query-category Click Model into Groupon search engine, including deployment, effectively moving search relevance banding from manual to machine learnt, and registering millions of dollars of revenue increase.

Groupon — Chennai, India

Data Scientist, *Data Science* — Jun 2014 – Sep 2015

Involved in building machine learnt models for demand forecasting, identifying the right category and price assortments, and user email engagement prediction for European markets. In addition, conducted various user behavior studies using statistical methods to identify actionable business insights for these markets.

Zumbl — New Delhi, India

Software Developer Intern — Summer 2013

Designed and developed user features based personalization algorithms and credit based market system for a social network start-up.

Education

Indian Institute of Technology Delhi — New Delhi, India

B.Tech. in Computer Science & Engineering — Jul 2010 – May 2014

Other Courses

University of California Santa Cruz – Silicon Valley Extension — Santa Clara, CA

- Next Generation DNA Sequencing: Methods & Applications (Received Highest Grade) — Fall 2016
- Predictive Analytics: Applications of Machine Learning (Received Highest Grade) — Fall 2016

edX – Massachusetts Institute of Technology (MIT) — Online

- Introduction to Biology by Prof. Eric S. Lander (Successfully Completed) — Fall 2016

Publications

Deependra Singh, Vinay Deolalikar: "Automating Relevance Banding in eCommerce Search using Click Model". 39th European Conference on Information Retrieval (ECIR 2017). [Submitted, Under Review] [Preprint available] [pdf]

Vinay Deolalikar, *Deependra Singh*: "How Informative are the Concept Associations Discovered by a Document Cluster?". 21st Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD 2017). [Submitted, Under Review] [Preprint available] [pdf]

Neeraj Pradhan, Vinay Deolalikar, *Deependra Singh*: "Islands of Interest: Mining Concentrations of User Search Intent over E-commerce Product Categories". 21st Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD 2017). [Submitted, Under Review] [Preprint available] [pdf]

Vinay Deolalikar, *Deependra Singh*: "Can Econometrics Tell Us Which High Dimensional Text Clusters have Short Signatures?". 17th SIAM International Conference on Data Mining & Analytics (SDM 2017). [Submitted, Under Review] [Preprint available] [pdf]

Deependra Singh, Vinay Deolalikar: "Applying Click Model to nonTaxonomy Queries in eCommerce". 40th International ACM SIGIR Conference (SIGIR 2017). [Manuscripts to be Submitted] [Preprint available]

Selected Projects

UCSC – Silicon Valley Extension — Santa Clara, CA

- *Distinguishing exons and introns in Human DNA* — Fall 2016

  Used decision tree algorithm to produce classifiers based on several coding measures to distinguish between exons and introns in Human DNA sequences of varying length. Currently exploring deep learning techniques to solve this problem.

Groupon Palo Alto, CA

- *Automating Relevance Banding in eCommerce Search* Mar – Nov 2016
  Automated the process of relevance banding using statistical and information theoretic approaches over a construct known as the click-model that encodes query-click logs, and deployed to production. **(US Patent Filed)**

Groupon Chennai, India

- *User Email Engagement Prediction* Jun – Sep 2015
  Worked on developing models for UK market to predict future user engagement with Groupon through emails based on user features and historical activities.
- *Demand Forecasting* Jul – Nov 2014
  Worked on developing a machine learning framework to forecast demand in assorted categories and price ranges for each local Groupon market in UK, Germany, France, and Italy.

Indian Institute of Technology Delhi New Delhi, India

- *Enhancements in NVDA Screen Reader (B.Tech. Thesis)* Jul 2013 – May 2014
  Added support for complete set of charts in Microsoft Excel and enhanced support for web browsers in the python-based open source screen reader NonVisual Desktop Access (NVDA), incorporating feedback from visually impaired community.
- *Pintos Operating System* Spring 2013
  Implemented system calls infrastructure, extended the virtual memory implementation and file system support on the bare-bones operating system for x86, Pintos.
- *Networked Multiplayer Carom Game* Fall 2011
  Designed and Developed a multiplayer networked carom game in C++ using openGL for graphics, and TCP/IP for network calls.

Services & Achievements

- Member of the Program Committee for the Application Track of the IEEE International Conference on Data Science and Advanced Analytics (DSAA) 2017. [2017].
- Youngest of the graduating class of 2014 having completed bachelor's degree at the age of 19. [2014]
- Awarded Merit-cum-Means scholarship by Ministry of Human Resources, Govt. of India. [2010 – 2014]

Programming

Java, Python, Hive, Hadoop, SQL, MATLAB, R, Shell, C++, C, Standard ML, MIPS Assembly, VHDL

Teaching Experience (Volunteer)

Make A Difference Chennai, India
English Teacher Jul 2014 – Apr 2015
Taught introductory English to a class of 30 freshmen living in a shelter home assisting them with the change in medium of instruction from Tamil to English.

Make A Difference New Delhi, India
Mathematics Teacher Jan – Apr 2014
Taught Mathematics to a group of senior secondary students living in an orphanage.