

Pankesh Bamotra

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Education

- MCDS** **CARNEGIE MELLON UNIVERSITY, SCHOOL OF COMPUTER SCIENCE.**
MASTER OF COMPUTATIONAL DATA SCIENCE - DEC. 2016 - GPA **3.75**.
▷ *Machine Learning for Large Datasets.* ▷ *Search Engines.* ▷ *Natural Language Processing.* ▷ *Probabilistic Graphical Models.* ▷ *Multimedia Databases and Data Mining.* ▷ *Deep learning.*
- B.Tech CSE** **VELLORE INSTITUTE OF TECHNOLOGY.** BACHELOR OF TECHNOLOGY IN COMPUTER SCIENCE AND ENGINEERING - MAY 2013 - GPA **9.24**.
▷ *Data structures and algorithms.* ▷ *Operating systems.* ▷ *Linear algebra.* ▷ *Computer programming and problem solving.* ▷ *Digital Logic.* ▷ *Algorithm design and analysis.*

Experience

- Coupan** **RESEARCH ENGINEER - COMPUTER VISION.** SEPT '18 - PRESENT.
Working with Visual Search team to deliver a multi-category visual search engine for smoother customer shopping experience
▷ *Developed a semi-supervised algorithm to learn product embeddings for the whole Coupan product catalog.* ▷ *Currently working with front-end engineers to push an internal beta app.*
- Coupan** **RESEARCH ENGINEER - NLP.** FEB '17 - AUG '18.
Working with Retail Systems team to ramp up product selection exponentially by optimizing operational efficiency through machine learning
▷ *Delivered a scalable product classification tool to organize products in hierarchical fashion.* ▷ *Working on a multi-modal task to generate tags for products.*
- Autodesk** **SOFTWARE INTERN - BIG DATA ANALYTICS.** MAY '16 - AUG '16.
Worked with cloud platform team to migrate data from legacy system and ingest it into new Spark based platform
▷ *Worked with AWS, Spark, Oozie, Hadoop.* ▷ *New platform helped the company tune data ingestion, transport, and compute layers.*
- PayPal** **SOFTWARE ENGINEER.** JUN '13 - JUL '15.
Worked with Open Analytics Platform group to develop self-service database provisioning tool for analysts and developers
▷ *Refactored legacy code into a maintainable and testable stack.* ▷ *Developed plug and play solution for Qlikview and Teradata.* ▷ *Delivered SQL based solution to analyse clickstream data.* ▷ *Worked with one of the first agile teams at PayPal.*
- PayPal** **SOFTWARE DEVELOPMENT INTERN.** JAN '13 - JUN '13.
Worked with seller risk management to create early warning dashboards
▷ *Developed a SQL based solution to analyse buyer account habits.* ▷ *Early warning indicator reports used by teams across NA and EMEA for fraud analysis.* ▷ *Modeled post transaction risk mitigation.*

Projects

- Info Retrieval** **IMPLEMENTED A SEARCH ENGINE ON LUCENE.**
▷ *Supports exact match (Ranked Boolean).* ▷ *Best match using Okapi BM25 and Language model.* ▷ *Sequential dependency model.* ▷ *Query expansion.* ▷ *LeToR enabled.*
- ML** **BRAIN fMRI IMAGE DATA ANALYSIS.**
▷ *Classification of fMRI images using SVM.* ▷ *Prediction of fMRI image voxels using ElasticNet Ridge Regression.*
- NLP** **QUESTION GENERATION AND ANSWERING SYSTEM - BEST PROJECT AWARD.**
▷ *Wikipedia dataset.* ▷ *CLI interface to generate and answer questions.* ▷ *Generate semantically, grammatically, fluent questions and answers.*

Prob. Graphical models	CONTEXT GENERATIVE RECURRENT NEURAL NETWORK LANGUAGE MODEL. ▷ Penn Treebank dataset. ▷ Optimized by Gensim, faster-rnnlm. ▷ Deep learning.
Data mining	DATA MINING ON LARGE SCALE GRAPHS. ▷ Social graph datasets - Epinions, Gnutella. ▷ SQL based algorithms - Pagerank, K-core decomposition, SVD, triangle counting. ▷ Pattern analysis on static and temporal graphs using power law analysis.
Capstone-1	FINANCIAL PRICE PREDICTION FROM EARNING CALL TRANSCRIPTS. ▷ Predicts directional movement of stock on next trading day. ▷ Predicts change in stock price on next trading day. ▷ Analysis purely using NLP and historical stock prices.
Deep learning	BEAUTIFYING HANDWRITING USING NEURAL NETWORKS.. ▷ Applies extracted style to handwriting from existing font. ▷ Extraction of style using VGG19. ▷ Maintains text legibility and aesthetics.
Capstone-2	STANFORD QUESTION ANSWERING DATASET CHALLENGE.. ▷ Reading comprehension task. ▷ 100k+ question-answer pairs. ▷ Used fusion model combining NLP and deep learning techniques.

Technical

Advanced	Python, Pandas, Scikit-learn
Intermediate	PyTorch, Keras on Tensorflow, PySpark, Java, MySQL, Docker
Catching up	Hive, Presto, Rust

Publications

IOSR Journal (Sep '12)	SECURING GROUP COMMUNICATION IN PARTIALLY DISTRIBUTED SYSTEMS. SYMMETRIC KEY CRYPTOGRAPHY, KEY DISTRIBUTION.
IJSCE (Nov '12)	SECURE TRANSMISSION OF GRAYSCALE IMAGES USING DISCRETE FOURIER TRANSFORM. IMAGE PROCESSING, SECURITY.
IJARCSSE (Dec '12)	IMAGE ENCRYPTION USING PIXEL SHUFFLING. ENCRYPTION.
IJAIS, FCS (Jan '13)	LRUD SHIFT BASED ENCRYPTION METHOD USING MATRICES. ENCRYPTION, SECURITY, LINEAR ALGEBRA.
IJAIS, FCS (May '13)	HADOOP AND RISK ANALYTICS. ANALYTICS, FINANCE, BIG DATA.

Extra-Curricular Activities

Public speaking	Vice President for three terms at PayPal IDC Toastmasters and awarded for Competent Communicator milestone, area level international speech contest runners-up in 2014
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