# Vinod Rao

**Data Scientist**

**Summary**

Data Scientist with **12 years of IT experience** from junior to senior level including **4 years' experience in machine learning** and data mining in **two fast-paced startups**. **Increased conversion rate by 20% in A/B testing** startup by improving **feature selection** and **accelerated search traffic up to 400%** by improving search relevance in a search engine startup. Developed recently a predictive model based on **LSTM** technique with newly acquired skills in **R, Python** and **applied statistics** by manipulating time series industrial dataset of size **4TB** to analyse the pattern of events.Able to leverage statistics for **statistical modeling** with **visualisation** and a healthy sense of exploration with Python **Matplotlib**

**Academic Projects @ IIT Chicago (01/ 2016 – 01/ 2018**)

* *Applied* ***TensorFlow (LSTM) to forecast errors in production server by learning pattern of events from historical logged data (Capstone Data Practicum)***
* *Designed an agent to solve 2x2 & 3x3 Raven’s Progressive Matrices using* ***Image Processing Library Pillow*** *of Python*
* *Implemented* ***Decision Tree and Gaussian Naive Bayes models*** *to expedite treatment by classifying to detect diabetic retinopathy patients using real-time clinical dataset*
* *Improved accuracy of movie recommender system by devising Movies Genre Prediction using IMDB dataset using* ***Cosine Similarity***
* *Developed an application for Smart Home as a research student of CSmart Lab of IIT Chicago*
* *Applied* ***Random Forest and Neural Network models*** *to devise a handwritten digit recognizer to detect ZIP CODE in Postal Services using MNIST dataset*

**Skills**

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| **Expert Level** | *Python, Algorithms, Pandas, SQL, C, C++, OOP, Shell, AWK, SED, Unix, Debugging* |
| **Advanced Level** | *R, Data Cleaning, Mathematical Modeling, Machine Learning, Data Visualization, Scikit Learn, NumPy, SciPy, Statistics, Perl, PHP* |
| **Experienced** | *Java, SAS, Opencv, Tableau* |

**Professional Experience**

**FrogTutoring.com, Chicago, IL.**

**10/2018 - Present**

**Data Scientist**

Responsibilities

* *Mentoring students and professionals on the concepts of Statistics , AI, Machine Learning, Python ,R and college mathematics*

Achievements

* *Designed Probabilistic Graphical Model using Bayesian nets using pgmpy lib of Python*
* *Analysed social network dataset using Hadoop to find it important metrics such as strongly connected component*
* *Coached to learn Python from basic to advance level*
* *Guided to solve problems on statistics related to hypothesis testing and P-value*
* *Instructed to write SQL joins and views*

**FunnelEnvy.com, USA, Chicago, IL (Remote)**

**08/2018 -10/2018**

**Machine Learning Engineer**

Responsibilities

* *Automation of A/B testing to increase the rate of conversion using machine learning*

Achievements

* *Fixed code bug related to timezone syncing*
* *Analysed customer activity log and extracted most important features using Lasso regression*
* *Implemented Logistic Regression to predict conversion rate of new user based on activity log*

**FrogTutoring.com, Chicago, IL**

**02/2018 – 07/2018**

**Data Scientist**

Responsibilities

* *Mentoring students and professionals on the concepts of Statistics , AI, Machine Learning, Python ,R and college mathematics*

Achievements

* *Coached to identify and solve probabilistic problems based on stochastic processes such as Bernoulli and Poisson*
* *Guided to perform Chi-Square and t-test to find correlation and causation using a dataset of 75 breast cancer patients*
* *Coached to implement Python mapreduce library "mrjob" to find metrics of guests and visitors from visitor logs of White House*
* *Taught students on concepts of advanced statistics, Pthread, Python , Machine Learning, and Database design*
* *Guided to design a backtracking algorithm to solve a famous puzzle named Sudoku*

**Oracle, Bangalore, India**

**05/2013 – 12/2015**

**Senior Member Technical Staff**

Responsibilities

* *Corresponded with customers of a product “BRM” (Bill & Revenue Management) to investigate and fix issues*
* *Installed and executed Oracle database on test servers to test various changes done in BRM based on the bugs that customers would assign to our team*
* *Mentored an intern on using regular expressions to automate a manual process*

Achievements

* *Developed a process to parse XML files 25% more efficient using the tools Xerces and Xalan*
* *Devised stored procedures to create indexes to improve Oracle database query lookup time by 50% faster*

**Computer Science Corporation, Chennai, India**

**08/2011 – 05/ 2013**

**Senior Software Engineer**

Responsibilities

* *Coordinated with customers of a product “ValueQuix” to resolve incoming issues*
* *Led team members to fix bugs of the product in C++ , Shell and Perl*
* *Interviewed to fill staff positions*

Achievements

* *Saved 40% of the daily manual effort of the team by automating tasks such as archiving logs and ordering report generator*

**IBM, Chennai, India**

**02/2010 – 07/ 2011**

**Senior System Engineer**

Responsibilities

* ***Data Migration from Mainframe to Oracle Database***
* *Identified and rectified issues of a product “TAFI” reported by customers*
* *Improved Mainframe access time by 10% by replacing legacy middleware "CORBA" with Java Web Service using WSDL*
* *Drafted workshop for team members on Artix software, Makefile, UNIX and Perl*

Achievements

* *Saved 20% time of the team to debug outages by developing tool “System Health Check”*

**Guruji.com, an Indian Search Engine, Bangalore, India**

**04/2006 – 02/2010**

**Member of Technical Staff (Jr. Data Scientist)**

Responsibilities

* *Developed Cosine Similarity using TF-IDF scoring scheme to improve the relevant results to satisfy search users' intent*
* *Devised a graph based algorithm using N-Grams to suggest related search keywords, that also helped to find satisfactory results*
* *Conceptualised and built a dictionary application for word meaning lookup through search engine*
* *Collaborated to design and develop search verticals as music , finance , and local Indian language*
* *Built and sustained a business analytics dashboard to monitor the growth of search business using logs*
* *Innovated a system to automate sending emails to business executives while crawling "Contact Us" page*

Achievements

* *Contributed 400% growth in unique visitors by propelling overall search traffic from 35K to 500K searches per day within 3 years*
* *Assisted to generate revenue from none to 100K INR per month by making 500+ new customers of Guruji AdWords*

**eConsultancy Service, Patna, India**

**06/2005 – 03/2006**

**Founder & CEO**

Responsibilities

* *Negotiated with the customers to understand their needs to deliver full stack application for their business*
* *Developed Java applets to simulate working steps of algorithms and data structures for a local coaching institution*
* *Implemented inventory applications using Java for a library of a local college and a grain store*
* *Designed an online course registration application using Java for college students and monitored users' traffic*

Achievements

* *Increased revenue from none to 10,000 INR per project*
* *Attained word of appreciation from all customers*

**Education**

* **IIT** Chicago, USA, **Data Science**, MS (01/ 2016 – 12/ 2017)
* **MIT** Cambridge, USA, Mastering Innovation & Design-Thinking (07/2013)
  + *An Entrepreneurship Course under* ***MIT Professional Education*** *Short Programs*
* **IIT** Guwahati, India, **Computer Science**, B. Tech. (07/ 2001 – 05/2005)

**Additional Activities**

* Scarlet Hackathon, IIT Chicago (2017-11)
  + *Devised an image search engine indexed on caption words extracted by applying neural net algorithm on images*
* Arch Hack Hackathon, UWash St. Louis (2016-11)
  + *Built a logistic regression model to detect breast cancer using UCI ML data*

**Certificates**

* **Machine Learning** Summer School, Reykjavik, Iceland (2014-04)
* **Machine Learning**, Coursera.org (2013-12)

**Personal Details**

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| **Portfolio** | <https://sites.google.com/view/vinodrao/home> |
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