Saad Khan

Senior RAN Engineer · Data Scientist
saadkhan321@gmail.com | 571.420.1920 | saadkhan321 | saadakhan1 | saadakhan321
4251 Parklawn Ave, Apt 204, Edina, MN 55435

TEHCNICAL SKILLS

PROGRAMMING LANGUAGES: Python • R • MySQL • Java • HTML, CSS & Javascript • LaTeX
SOFTWARES: Ipython Notebook (Anaconda)• R Studio • Weka • Eclipse • MS Office • MS Visio • Tableau • Alteryx • FME • MS SQL Server
PYTHON PACKAGES: numpy • scikit-learn • pandas • ggplot • matplotlib • scipy • pymongo • python image library (PIL)
R PACKAGES: ggplot2 • dplyr • ggally • ggpairs • reshape2 • mclust • nbclust • clvalid
DATA WRANGLING SKILLS: XML • JSON (MongoDB) • SQL
STATISTICAL SKILLS: std. deviation • variance • confidence level • hypothesis testing • significance tests (z-test, t-test, Mann-Whitney U, χ^2)
MACHINE LEARNING: SL • UL • RL • natural language processing • feature selection & transformation • performance analysis

PROJECT EXPERIENCE | MACHINE LEARNING & DATA ANALYSIS

RULE-BASED AND MACHINE LEARNING BASED STOCK MARKET TRADER | report
November 2016 | GEORGIA TECH - Masters in Computer Science

- Objective was to implement rule-based and ML based trading strategies in python and compare performance for a training and test periods.
- Strategies were built using technical market indicators such as relative strength index, momentum, moving average, bollinger bands, etc.

ANALYZING RANDOM TREE LEARNER WITH AND WITHOUT BAGGING | report
October 2016 | GEORGIA TECH - Masters in Computer Science

- Decision Tree classifier and bagging API were implemented in python with tree and node decision based on randomness.
- Extent of overfitting was analyzed with and without bagging in terms of RMSE and correlation coefficient for the wine dataset.

CORRELATED-Q LEARNING AND GENERAL-SUM MARKOV GAMES | report
July 2016 | GEORGIA TECH - Masters in Computer Science

- Python was used to create experiments for Friend & Foe-Q, Correlated-Q and Q-Learning when applied to 2-player 0-sum games.
- This was bsed on the paper published in 2003 by Greenwald & Hall and results replicated were for the soccer game experiment.

TEMPORAL DIFFERENCE LEARNING AND RANDOM WALK EXPERIMENT | report
June 2016 | GEORGIA TECH - Masters in Computer Science

- Random Walk experiment from Richard Sutton's 1988 paper on Temporal Difference methods was implemented in python.
- Two different settings for the experiment were setup and the best performing ranges of λ values were highlighted.

MARKOV DECISION PROCESSES | report
November 2015 | GEORGIA TECH - Masters in Computer Science

- Objective was to run value iteration, policy iteration and Q learning on 2 different MDPs, (a) with less no. of states, (b) with larger no. of states.
- Used Brown-UMBC Reinforcement Learning and Planning (BURLAP) based on Java to create and run all the experiments.

UNSUPERVISED LEARNING & DIMENSIONALITY REDUCTION | report
November 2015 | GEORGIA TECH - Masters in Computer Science

- 6 algos were implemented; 2 clustering: k-means, Exp. Maximization & 4 dim. red. algorithms: PCA, ICA, Rand. Projections and InfoGain.
- R and Weka were utilized for applying clustering and dimensionality reduction 2 interesting data sets from the UCI repository.

ANALYZING SUPERVISED LEARNING ALGORITHMS | report
September 2015 | GEORGIA TECH - Masters in Computer Science

- 5 algorithms; decision trees, neural networks, boosting, support vector machines and k-nearest neighbors were evaluated against each other.
- Weka Explorer and CLI were utilized for applying classification algorithms to 2 interesting data sets from the UCI repository.

AI SOLVER RAVEN'S MATRICES | report
April 2016 | GEORGIA TECH - Masters in Computer Science

- AI agent was built to solve Raven's Progressive Matrices using image/pattern recognition based on affine and logic transformations.
- Solver was built in python to address 2x2 and 3x3 cases where the train-test split was 50/50.

DATA VISUALIZATION USING D3 | github visualization
August 2015 | Udacity - Nanodegree

- Generated data visualization using javascript libraries such as D3.js and dimple.js that are used for manipulating documents based on data.
- Visualization included elements of interaction and animation for representation for user to have a better understanding of the data.

PREDICITIONS WITH SCIKIT LEARN | github report
June 2015 | Udacity - Nanodegree

- Created a person of interest identifier in python using resources from the Scikit learn library.
- Utilized machine learning to build an algorithm to identify Enron employees who committed fraud based on public Enron financial/email data.

DATA ANALYSIS WITH R | github markdown
May 2015 | Udacity - Nanodegree

- Using R, applied exploratory data analysis to find relations between variables of white/red wine data taken from samples of Vinho Verde wines.
- Analysis was carried out with relations in one variable to multiple variables along with exploration of selected data set outliers and anomalies.

WRANGLING USING MONGODB | github report
March 2015 | Udacity - Nanodegree

- Scripted in python to analyze/clean open street maps data in xml format and converted it to json for better data storage in MongoDB.
- Applied data munging techniques such as assessing the quality of the data for validity, accuracy, completeness, consistency and uniformity.

ANALYZING THE NYC SUBWAY | github report
January 2015 | Udacity - Nanodegree

- Analyzed the NYC subway data and figured out if more people ride the subway when it is raining versus when it is not raining.
- Applied statistical methods such as Mann-Whitney U test and used data visualization techniques in python to draw interesting conclusions.

WORK EXPERIENCE

TELECOM TECHNOLOGY SERVICES INC. | Senior RF Engineer
July 2012 – Present | Minneapolis, MN

- As part of the AT&T RF design team learned key design requirements for the AT&T radio network design in the upper Midwest region.
- VoLTE/LTE/UMTS RF Macro/cRAN design at AT&T using ATOLL and internal database/tools such as CSS, Quantum, RMAP and AutoForms.

T-FORCE INC. | LTE RF Design Engineer
December 2010 – November 2011 | Plano, TX

- Provided remote LTE RF design support to various AT&T markets using Forsk ATOLL RF design tool.
- Performed audits on UMTS design shared by AT&T to determine conversion to LTE and generated KPIs to be used in optimized RF design.

LCC INTERNATIONAL INC. | RF Design Engineer
December 2010 – December 2010 | Herndon, VA

- Main responsibilities included handling access performance issues through centralized support for various commercial Clearwire markets.
- Conducted FDD-LTE tests using 2.5 GHz spectrum monitoring KPIs such RSSI, RSRP, SINR/CINR, MCS & throughput, using Accuver XCAL.

ABACUS CONSULTING | WiMAX RF Planning Engineer
February 2008 – December 2009 | Lahore, Pakistan

- Planned WiMAX RF network for 400+ nodes using Motorola Diversity Access Points (DAPs) to meet customer requirements.
- Experience of designing and analyzing the WiMAX network based on coverage, interference & modulation using ATDI RF design tool.

ERICSSON PAKISTAN (PVT) LTD. | Services Engineer
March 2007 – February 2008 | Lahore, Pakistan

- Generated reports for drive tests including recommendations such as azimuth/tilt alteration.
- Created link budgets and interference analysis on TEMS Link Planner keeping in view the required important link design parameters.

EDUCATION

GEORGIA INSTITUTE OF TECHNOLOGY | Atlanta, GA
MS in Computer Science | Expected Graduation - December 2017
Specialization: Machine Learning
Cumulative GPA: 4.00
Courses: Machine Learning • Knowledge Based AI • Reinforcement Learning • Machine Learning for Trading

UDACITY | Mountain View, CA
Nanodegree | Graduated - August 2015
Specialization: Data Analyst

UNIVERSITY OF ENGINEERING & TECHNOLOGY | Lahore, Pakistan
BS in Electrical Engineering | Graduated - March 2007
Specialization: Computer Engineering
Cumulative Percentage: 78%
Honor's List