

# ASHNA ABRAHAM

SOFTWARE ENGINEER

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## Objective

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Engineering graduate with extensive experience in software development. A curious learner and detail oriented professional seeking dynamic and progressive environment that will help me to contribute to its development while aiding my professional growth.

## Key Skills

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**Languages:** JAVASCRIPT(ES6), PYTHON      **Databases:** MONGODB, SQL      **Version Controls:** GIT, SVN

**Web:** HTML5, CSS3, NODE JS, REACT JS, REDUX, GRAPHQL, PROGRESSIVE WEB APPS (PWAs)

**JS Technologies:** EXPRESS, NODE, NPM, REST APIs, WEB SOCKET, MONGOOSE, HIGHCHARTS, MAPBOX, JEST, SERVICE WORKER

**Python Libraries:** PANDAS, NUMPY, MATPLOTLIB, SEABORN, TENSORFLOW, KERAS, SCIKIT-LEARN, SPACY, PYTORCH, NLTK, CV2

## Experience

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### SOFTWARE ENGINEER - CISCO (2019 April – Present)

#### Cisco DNA Center

The Cisco Digital Network Architecture is a network management and command center for enterprise networks. The dashboard activates features and capabilities on network devices using Cisco DNA software. It delivers intent-based networking for enterprises encompassing automation, analytics and open platform capabilities

- Leading development of Device Installation, Network Design and Logging systems
- Implemented dynamic user defined workflows and navigation paving way for improved adoption of product
- Design and development of User Telemetry dashboard to internally identify key customer interests and preferences.
- Architecting and development of platform and libraries used throughout the product.
- Improved page loading time and provided offline support using Progressive Web Apps methodology.
- Overall improvement of performance, responsiveness and code quality maintenance and review of application.
- UI integration with RESTful API based web services and Development of node.js and python-based backend services.
- Code review and mentoring of Junior developers and interns

### UI ENGINEER - YOUPLUS (2019 February – 2019 April)

#### Magnomic

A magazine formatted react widget with video snippets that could be injected to external websites. The widget houses video ads corresponding to the user's history.

- Lead development and architecting of applications to be injected into external host websites.
- Development of component library based on react-styleguidist to be used across applications.
- Code review, Conducting Technical sessions & Team development

### SENIOR ENGINEER, PRODUCT DEVELOPMENT – ENVESTNET INC (2015 June – 2019 January)

#### Executive advisor dashboard & Client Portal

Executive advisor dashboard is a single platform for premium financial advisors to monitor, manage and evaluate various financial data of all their clients represented in data charts. Various analytical data is present to advisor embedded in high charts enabling them to make better business decisions. Client portal is a platform for end investors to view status reports of their assets and enabling them to automate service requests which were traditionally back-office operations.

## UMP Platform & Tamarac

UMP and Tamarac are rebalancing, trading and reporting platforms mainly for financial advisors housed by financial institutions. The platforms are written in Java and C# respectively.

- Developed java services to ingest, enhance, and load daily trading data into the platform.
- Trading and reporting platform new feature development and maintenance.
- Development of key customer facing pages of Client and Advisor Portals including Accounts, Service Request and Budgeting
- Automated 10+ service requests which were traditionally back-end operations.
- Development of reusable and scalable components and libraries.
- Implementation of token-based authentication workflow and integration of multi-factor authentication using Twilio.
- Experience in using JS libraries like high charts, reselect, immutable.js, lodash, eslint, font-awesome, moment.js

## Other Projects

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### MOVIE RECOMMENDATION SYSTEM

A movie recommendation system based on matrix factorization algorithm implemented with Python Flask framework and react JS front end. The application is based on MovieLens movie rating dataset with additional fields from 'The Movie Database' API's. It is deployed in Heroku [link](#), [git](#).

### FACE RECOGNITION SYSTEM

A Face recognition system developed using embedding from Google's FaceNet architecture, trained to detect the last nine presidents of the US. The implementation is in Python Flask framework with React front end. MTCNN Neural network is used to identify the face bounding box of image, which is fed to a pre-learned FaceNet network to get face embeddings. This embeddings is used to train Support Vector Classifier (SVC) to identify faces ([git](#)). Sample Implementation : [Link](#)

### COVID RELATED ARTICLE CLUSTERING & COVID DATA EDA

Clustering of scholarly articles about COVID-19, SARS-CoV-2, and related coronaviruses. The application helps to easily access relevant reference materials by searching a medical question related to virus. The notebook clusters articles into 50 topics based on Latent Dirichlet allocation and returns the articles in closest to the given questions ([link](#)).

Exploratory Data Analysis of COVID cases in different regions with data from Johns Hopkins University data repository ([link](#)).

### OTHER PROJECTS

Walmart Sales forecast using time series data, Tweet Sentiment Analysis, Sentiment Extraction from Text messages, Melanoma classification from images, Titanic Survival Prediction and Big Market Sales prediction ([git](#), [link](#)).

## Education

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### BACHELOR OF TECHNOLOGY - ELECTRICAL AND ELECTRONICS ENGINEERING, 2011-2015

Mar Athanasius College of Engineering (Mahatma Gandhi University, Kottayam, Kerala)

CGPA: 8.37/10 - First Class with Honours

### ALL INDIA SENIOR SCHOOL CERTIFICATE EXAMINATION (12<sup>TH</sup>), 2011

Central Board of Secondary Education

Percentage: 94.6

### ALL INDIA SECONDARY SCHOOL EXAMINATION (10<sup>TH</sup>), 2009

Central Board of Secondary Education

Percentage: 90.2

## Certifications

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### DEEP LEARNING SPECIALIZATION BY DEEPLARNING.AI (COURSERA, [CERTIFICATE LINK](#))

#### Courses

- **Neural Networks and Deep Learning:** Forward propagation, Back propagation, Hyperparameters, Vectorized neural network.
  - Planar data classification, Building deep neural network
- **Improving Deep Neural Networks:** Hyperparameter tuning, Regularization, Optimization & Normalizing, Gradients, Tensorflow
- **Structuring Machine Learning Projects:** Optimizing metrics, Train/Test/Dev set, Avoidable Bias, Improving performances, Error analysis, Transfer learning
  - Autonomous driving case study, Bird Recognition case study
- **Convolutional Neural Networks:** Computer vision, Object Detection, Residual Networks, Inception Network, Keras, YOLO Algorithm, Neural style transfer
  - Car detection with YOLO, Art Generation with Neural Style Transfer, Face Recognition
- **Sequence Models:** RNNs, Language Model, Sequence Generation, LSTM, NLP, Word2vec, GloVe, Attention Model
  - Jaz improvisation with LSTM, Sentiment Classification, Machine Translation with Attention, Trigger word detection

### MACHINE LEARNING SPECIALIZATION BY UNIVERSITY OF WASHINGTON (COURSERA, [CERTIFICATE LINK](#))

#### Courses

- **Foundations:** A Case Study Approach
  - Predicting house prices, Sentiment Analysis, Retrieving Wikipedia articles, Recommender Systems & Image retrieval
- **Regression:** Linear, Polynomial regression, Ridge Regression, K-fold validation, LASSO, Nearest Neighbors & Kernel Regression
  - Implement gradient descent, predict house prices using linear, polynomial regression and k-nearest neighbors
- **Classification:** Linear Classifier, Logistic Regression, regularization, Decision Trees, Boosting, precision & recall
  - Predicting sentiment from product reviews, Identifying safe loans with decision trees
- **Clustering & Retrieval:** Nearest Neighbor Search, K-means, Mixed Modeling, Latent Dirichlet Allocation, Hierarchical Clustering
  - Wikipedia articles clustering

### MACHINE LEARNING BY STANFORD UNIVERSITY (COURSERA, [CERTIFICATE LINK](#))

The course includes numerous case studies and applications to apply learning algorithms for text understanding (web search, anti-spam), computer vision, medical informatics, audio and images.

Topics include:

- Supervised learning (support vector machines, kernels, neural networks).
- Unsupervised learning (clustering, dimensionality reduction, recommender systems, deep learning).
- Best practices in machine learning (bias/variance).

### PYTHON FOR DATA SCIENCE AND MACHINE LEARNING BOOTCAMP (UDEMY [CERTIFICATE LINK](#))

- Programming with python and data visualizations methods.
- Libraries: NumPy, Pandas, Matplotlib, Seaborn, Plotly, Scikit-Learn.
- Implement ML Algorithms: K-Means Clustering, Logistic Regression Linear Regression, Random Forest, Decision Trees, NLP, Neural Networks & Support Vector Machines.
- Spark for Big Data Analysis & AWS set up

### STATISTICS FOR DATA SCIENCE AND BUSINESS ANALYSIS (UDEMY [CERTIFICATE LINK](#))

- Descriptive statistics, Distributions and Measures of central tendency, asymmetry, & variability
- Estimators & estimates and Confidence intervals
- Hypothesis testing
- Regression analysis

### MASTER SQL FOR DATA SCIENCE (UDEMY [CERTIFICATE LINK](#))

- Advanced querying techniques

## Achievements

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- Connected Recognition: You Accelerate 2 award for 'Connect Everything' initiative - Cisco September 2020
- Connected Recognition: You Amaze 3 award for 1st Prize in Hackfest 2019 - Cisco December 2019
- Connected Recognition: You Amaze 1 award for 'Innovate Everywhere' initiative - Cisco October 2019
- Best Student Placement Coordinator 2014-2015, Training and Placement Cell - MACE 2015