KONARK VERMA

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WORK EXPERIENCE

- **SDE-3, Software Engineer, DENSO Japan, Tokyo**

  September-2020 – Present **(3 years and 8 months)**
  Current Designation: **Software Development Engineer-3 (S3)**
  Current Role: **Team Lead, Project Owner (TL, PO)**

  - *Conduct daily standup meetings*, *design architecture*, and work with other team members on *development* of various projects.
  - *Setup CI/CD pipelines* for various *development and production environments*.
  - *RESTful API Development, Web Application Development, DevOps, Cloud Deployment, NodeJS.*

  - Some projects worked on:

  1. **Quad-Terminal**

     - A **Web Browser based Terminal** that runs at the user's device and has the capability to connect to various microservices running as docker containers on the device - using *websocket* connections.
     - The cloud part of this application allows the user to access this terminal *remotely* as well, through *port forwarding* and *websocket connections*, for debug and testing purposes.
     - *Docker, ECS, ECR, Fargate, Websockets, AWS-CDK, REST APIs, Reverse Proxy, NodeJS, Jest.*
     - Made *specific improvements* by merging different microservices into one. This not only *improved* the *performance*, but also *reduced the load* on the user's device and saved space on the cloud. It also *reduces* the *cost* of running services on cloud by *approx. 20%*.

  2. **Quad-Installer**

     - A **NPM package** that *installs* various *microservices* in form of *docker containers* and *systemCTL services* on a user's device, and also has the capability to *update them remotely.*
     - This tool can be used to *check the status* of all *microservices* running on a device *remotely* and also *update itself*.
     - It has a *built-in engine* for *running* specific jobs as well as *prioritizing* and *scheduling* them.
     - *Docker, systemCTL services, S3, Cognito, AWS-CDK, NodeJS, Typescript, Jest.*

- **Project Intern, Tensor Dynamics Private Limited, IIT Delhi**

  October 2018 – December 2018 **(3 months)**

  - Built *Statistical Visualization Models* and *Deep Learning based systems* to *forecast Solar Power* day ahead.
  - Used Sequence Models such as ARIMA and LSTMs on past solar data.

- **Teaching Assistant, Plaksha Technology Leaders Fellowship Program, Gurgaon**

  September 2020 – March 2021 **(7 months)**

  - Helped design and taught various courses for Machine Learning and Deep Learning.
  - Created assignments, quizzes, exams for students.

MISCELLANEOUS/ACHIEVEMENTS

- **Keynote Speaker** in **COVESA 2023 Conference, Detroit, USA.**
  Gave a talk on: **Accelerating IoT Development: Leveraging VSS at the Edge.**
- **Publication** in **DSSG-21, The 3rd Workshop on Data Science for Social Good, KDD 2021 · Aug 15, 2021**
  Exploring the Scope of Using News Articles to Understand Development Patterns of Districts in India
- Secured **4th rank** in Game of Breakouts - **Kaggle Competition**, from a total of 100 teams.
- Scored **453 All India Rank** (99.6 percentile), in CS GATE-2018 out of 107,893 candidates.
- **Won** - **Game Development Hackathon** by redesigning and redeveloping 1982's Computer Game - **Paratroopers** with multiple levels and power-ups using Unity3D Framework.

OTHER PROJECTS

3. **Built a District Development Model for India – MTech Project (Prof. Aaditeshwar Seth):**

   Used Mass Media data and Census data to develop a method that gives us the most relevant news articles which explains and analyzes the growth in various Indian districts on the basis of Agriculture, Development, Lifestyle, Environment and Industrialization. (Publication mentioned above)

   Doc2Vec, DocTag2Vec, TF-IDF, Hierarchical Clustering, K-Means Clustering, Glove-Embeddings.

4. **Latex to HTML Compiler/Converter:**

   Built a Compiler/Converter along with *Abstract Syntax Tree (AST) implementation*, using lexical and parsing tools like flex and bison.

   This software converts a given Latex code to its corresponding HTML code.

5. **Machine Learning, Deep Learning Based Projects:**

   i. **Similar Companies - Recommendation System:**
   An NLP based recommendation system which takes text information about a company and gives a list of similar companies.
   - *Glove Embeddings, TF-IDF, Hierarchical Clustering, K-Means Clustering, Cosine similarity.*
   - Created a *Django* based web app and hosted on cloud using *Docker, ECR, and ECS Fargate*.

   ii. **Malware Classification System:** Used classical machine learning techniques like *Logistic Regression, K-Nearest Neighbors, Random Forests* to classify a given malware into 10 different classes with more than **99.7% accuracy.**

   iii. **Autonomous Driving Vehicle:** Used *Conv2D, Conv3D, R-CNNs (Conv-LSTM)* to design an end-to-end self-driving car's steering control system from a live video feed, which could depict the capabilities of a self-driving car **98%** of the time.

EDUCATION

- M. Tech. **Indian Institute of Technology, Delhi** Computer Science and Engineering 2018 - 2020
- B. Tech. **University of Delhi, Delhi** Computer Science 2013 - 2017