SHUBHANKAR GARG

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Education

University of California, Davis — **Expected 2024**
Masters in Computer Science; (GPA- 3.86) — *California, USA*

SRM Institute of Science and Technology — **Jul 2018 – May 2022**
Bachelor of Technology in Computer Science; (Top 10%) — *Chennai, India*

Relevant Coursework

University

- Data Structures and Algorithms
- Software Engineering
- Artificial Intelligence
- Design and Analysis of Algorithms
- Object Oriented Programming
- Database Management Systems
- Operating System
- Big Data and High performance
- Statistical Computing
- Advanced Machine Learning
- Applied Numerical Linear Algebra
- Computer Networks

Skills

Programming Languages: Python, C/C++, SQL, HTML, CSS, JavaScript.

Area of Expertise: Software Engineering, MERN stack web development, Data Analytics, Web Development, Object oriented Programming(OOPS), Machine Learning Algorithms(ML), Artificial Intelligence(AI), Database Management Systems(DBMS), Computer Networking.

Tools and technologies: React, Express, MongoDB, Babel, Pandas, Jupyter Notebook, Visual Studio Code, Pycharm, Autocad, Cisco Packet Tracer, Ubuntu Terminal, Microsoft Office, Microsoft Excel, Microsoft Powerpoint, AutoCAD, Tableau.

Soft Skills: Problem Solving/Critical Thinking, Teamwork/Collaboration, Accountability, Adaptability, Inquisitiveness.

Projects

Sugar and Spice- An E-Commerce-Application
Software Development, Full Stack web development — ***June 2023 - Aug 2023***

- **Objective:** Successfully developed a fully-functional e-commerce web application utilizing React, Express, and MongoDB technologies to provide an interactive and seamless online shopping experience.
- **Responsibilities:**
  * Implemented user-friendly interfaces with React, allowing customers to select product options and dynamically view corresponding prices.
  * Created an Express server to handle user requests, manage shopping carts, and process secure credit card payments.
  * Leveraged MongoDB and Studio 3T to efficiently store and manage order details and customer information securely.
  * Implemented email notification system using Nodemailer to send order confirmation emails to customers.

Roomie Roulette- Course Project(Artificial Intelligence: Computational Story telling)
Software Develpoment, Front-end development — ***Jan 2023 - Mar 2023***

- **Objective:** Collaborated with a team of four to create an engaging and interactive computational narrative game called "Roomie Roulette" for an academic course project. The game aimed to find the player a perfect roommate through character interviews and scoring based on their responses.
- **Responsibilities:**
  * Played a key role in the front-end development of the game, leveraging the Ren'Py framework to design and implement various elements. This involved adding characters, backgrounds, and music to enhance the game's visual appeal and user experience.
  * Testing and Bug Fixing: Conducted thorough testing of the front-end functionalities, identifying and resolving any issues or bugs that arose during the development process to deliver a polished and error-free game.
  * Project Documentation: Assisted in preparing the project report, detailing the implementation procedures, design choices, and presenting the final outcome of the Roomie Roulette game.

Cancellation of Hotel Bookings- Course Project(Big Data and Statistical Computing)
Data Analytics, Machine Learning — ***Apr 2023 - Jun 2023***

- **Objective:** Predicting cancellation of hotel booking by applying ML algorithms and comparing accuracy of different algorithms.
- **Responsibilities:**
  * Performed data preprocessing, leveraging essential libraries such as Pandas, NumPy, Matplotlib, and Seaborn to clean, explore, and analyze the dataset. Proactively addressed outliers using Lasso regression to improve model robustness.

- * Applied various machine learning algorithms, including Naive Bayes, Logistic Regression, Random Forest, Decision Tree, and K-Nearest Neighbors (KNN) to predict hotel booking cancellations. Utilized Python's scikit-learn library to implement the algorithms efficiently.
- * Machine Learning Model Evaluation: Assessed the effectiveness of the models using various metrics like accuracy, precision, recall, and F1-score to validate their performance and reliability.
- * Identifying the Best Algorithm: Based on the comparative study, determined that the Random Forest algorithm exhibited the highest accuracy and precision for predicting hotel booking cancellations.

Network Designing for a 3-Star Hotel- Course Project(Computer Networks)

Computer Networks   ***Jul 2020 - Dec 2020***

- **Objective:** Created a Network Design for a 3-star hotel having 15 floors, each having ten rooms with wireless internet access for the lobby, swimming pool areas, and a private network for staff.

- **Responsibilities:**
  - * Prepared interconnected network diagram using switches and wireless AP in Cisco Packet Tracer.
  - * Network Fibre optic cable, ADSL, and firewall for establishing the internet connection.
  - * Set up a DMZ network for separate network settings of hotel management using VLAN.Configured Access Control list to disallow guests for accessibility of Hotel Management server.

Status of Chronic Kidney Disease - Personal Project

Machine Learning   ***Aug 2021 - Sep 2021***

- **Objective:** Predict the status of chronic kidney disease by a machine learning model.

- **Responsibilities:**
  - * Predicted the status of chronic kidney disease using libraries as pandas, Numpy, Scikit-learn and matplotlib.
  - * Used XGB classifier for implementation of gradient boosted trees Machine Learning algorithm to predict the result.

Publications

Liver Failure Prediction using Supervised Machine Learning *– S. Garg, D. Dwivedi, R. Jayaraman.*
"Liver Failure Prediction using Supervised Machine Learning". Published in 2022 7th International Conference on Communications and Electronic Systems(ICCES) by IEEE and added on IEEE Xplore on 29th July 2022.

Experience

Defence Research and Development Organisation,India   **Jul 2021 – Oct 2021**

Research Intern under Scientist Girish Mishra

- Research Internship at DRDO in ML and deep learning. Researched on the concepts of Long Short term memory(LSTM) neural network and RC4 symmetric stream cipher and variable key algorithm. Generated dataset for cryptanalysis of RC4 cipher using LSTM and modified model for implementation of RC4 successfully. DRDO's scientific analysis group received the final report, which includes codes for distinct implementations of the E0 cipher, the RC4 algorithm, and the LSTM along with the end results.

University of California, Davis   **Apr 2023 – Jun 2023**

Teaching Assistant under Proff. Josh Mccoy

- Graded and evaluated gameplay programming assignments, providing constructive feedback to enhance student implementation skills. Assisted students in understanding and applying gameplay programming concepts. Collaborated with Professor Josh McCoy during lectures, contributing to successful course delivery. Gained practical experience in C# and Unity software. Led discussions, fostering an interactive learning environment, and maintained a cohesive team atmosphere.

Certifications

- The Data Science course 2021: Complete Data Science Bootcamp	**Mar2021-May2021**
- Building web applications In PHP from Coursera	**Mar2021-May2021**
- Interactivity with JavaScript from Coursera	**Sep2020-Oct2020**
- Getting started with python from Coursera	**Aug2020-Sep2020**
- Introduction to HTML from Coursera	**Aug2020-Sep2020**
- Introduction to CSS3 from Coursera	**Aug2020-Sep2020**
- Data Structures and Algorithms using Java from NPTEL	**Sep2020-Dec2020**

Extra-Curricular Involvement

- Currently Working as a Food Service worker at University of California,Davis.	**Jan2023-present**
- Contributed as a fundraiser at Youth Empowerment Foundation NGO,India.	**May2021-Jul2021**
- Worked as a Fundraiser at Muskurahat Foundation NGO,India.	**May 2021-Jul2021**