Kunal Chawla

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Profile

A highly motivated and computer science engineer with a strong foundation in computer science concepts, programming languages, software development and machine learning. Skilled in web development, object-oriented programming, and database management, with a keen eye for detail and passion for creating effective solutions.

Experience

- **VOLVO CARS CORPORATION** ***Aug. 2023 – Present***
  Software Development Intern (Autumn Intern 2023) Gothenburg, Sweden

  – Embarking on an exciting journey with cutting-edge technologies such as **Machine Learning**, **AI,** and **Data platforms.**
  – Will be contributing my expertise to the development of future car platforms, with a special focus on **revolutionizing batteries** and **power electronics**, shaping the future of **sustainable transportation**.
  – Developing **software solutions**, executing **meticulous tests**, and seamlessly integrating diverse systems, ensuring **flawless performance** and driving user-centric experiences.
  – Tech stack: Python, Github, Docker, React, Node,js, .NET Framework.

- **BORNMONKIE** ***May. 2022 – Jul 2022***
  Game Development Intern Hyderabad, India

  – Researched and gathered valuable information for the company.
  – Provided **data driven valuable insights** such as total retention time on the app, total number of players playing at a particular moment on the app and which games are liked by the customers and designed an **interactive dashboard** to be presented to the stakeholders.
  – Developed a **shooting game** using Unreal Engine-5 and established a **Continuous Integration/Continuous Deployment pipeline** utilizing **Gitlab** and **Docker** for the game's operation on **CentOS7** Linux System.
  – Tech stack: Python, MS Excel, Gitlab, Docker, Unreal Engine-5, Power BI, C++, Linux (CentOS 7).

- **MICROSOFT** ***Dec. 2020 – Feb 2022***
  Project Intern (Apprenticeship) Hyderabad, India(Remote)

  – Completed a rigorous **apprenticeship program** with **Microsoft**, gaining hands-on experience in both **front-end** and **back-end development** of websites.
  – Developed proficiency in utilizing the **MERN stack (MongoDB, Express.js, React.js, Node.js)** along with **HTML**, **CSS**, and **JavaScript** to create dynamic and interactive web applications.
  – Designed and developed an **e-commerce website** named Shopoholics, incorporating **product catalog**

management, **secure payment processing**, and **responsive user interface** design.

- Built a **job searching website** utilizing the **MERN stack**, allowing users to search, filter, and apply for job listings, while implementing **user authentication** and seamless **data management**.
- Successfully **deployed** the e-commerce website on the internet, ensuring **scalability** and **optimal performance.**
- Tech stack: Github, HTML, CSS, Javascript, MongoDB, Express Js, Node Js, React.

Education

- **B.E Computer Science with Spl. in Artificial Intelligence & Machin Learning** ***Apr. 2020 – Jun 2024***
  Chandigarh University, Gharuan, Punjab, India C.G.P.A : 8.52/10

- **Senior Secondary(Class 12th), CBSE Board** ***Apr. 2018 – Apr 2019***
  Rajiv International School, Mathura, Uttar Pradesh, India Percentage : 91%

- **Secondary(Class 10th), CBSE Board** ***Apr. 2016 – Apr. 2017***
  Rajiv International School, Mathura, Uttar Pradesh, India C.G.P.A : 10/10

Technical Skills

- **Programming**: C++, Python, Java, C, JavaScript, HTML5, CSS, Flutter*
- **Libraries and frameworks**: React, Node.js, Express.js, Bootstrap, JSON, jQuery, RESTful API
- **Database management**: MySQL, PostgreSQL, MongoDB
- **Cloud Platform**: Trailhead(Salesforce), AWS*
- **Miscellaneous**: WEKA, Gitlab, GitHub, Docker, phpmyadmin*, Unreal Engine-5*, Unity*

** Elementary proficiency*

Projects

- **StreetSafe: AI based pothole detection Application** *Summer 2023*
  Team Project GitHub

  - Developed a **pothole detection android application**, which can be **easily downloaded** into the **android** operating system directly through the **APK File** or from **Play Store**. This application is able to alert the users about the potholes by using an **alarm** and has an accuracy of **96.7%.**
  - **Tech Stack:** Java, Python, MobileNet, Single Shot MultiBox Detection, CNN, Android Studio, Tensorflow API.

- **Moodify- Web Application for Emotion Detection** *Summer 2023*
  Team Project GitHub

  - Developed and deployed **Moodify**, a web application for **emotion detection**, utilizing **machine learning** algorithms such as **Multinomial Naive Bayes** and **Logistic Regression.**
  - Utilized **Python**, **Streamlit**, **Joblib**, **Pickle,** and various libraries including **Neattext, SQLite 3, NumPy, Pandas, Matplotlib, Scikit-learn**, and **Seaborn** in the development process.

- Implemented a **deep learning** model to analyze text features and predict emotions, resulting in an accuracy of **89.2%.**
- Designed an **intuitive interface** allowing users to input text and receive accurate emotion predictions, facilitating better understanding of the emotions conveyed through textual communication.
- **Tech Stack:** Python, Streamlit, Joblib, SQLite 3.

➢ **RideEase-Application for cab booking** *Winter 2022*
Personal Project GitHub

- Developed a **taxi booking service app** using **Flutter.** Fetched and implemented API's of **Google Maps, GeoLocator, Places API** and Direction.
- Handled **GeoFire Query** and generated **Firebase Cloud Messaging** token for each device. Integrated a payment gateway into the app.
- Handled Message requests for new rides and for a selected driver.
- **Tech Stack** – Flutter, Android Studio, Firebase, Java

➢ **StockProphet-A stock price prediction application** *Winter 2022*
Team Project GitHub

- Developed and deployed a web-based application, for **analyzing** and **predicting stock prices** using machine learning techniques.
- Utilized **Python** and various libraries including **NumPy**, **Pandas**, **Matplotlib**, **Keras**, **TensorFlow**, **LSTM** and **Scikit-learn** for data analysis, visualization, and modeling and secured an accuracy of **98%**.
- Implemented **technical analysis** and **visualization techniq**ues to identify **stock market trends** and patterns, allowing users to make informed investment decisions.
- **Collaborated** with a team to deploy the application using **Streamlit** deployment services, ensuring accessibility and **user-friendly** interaction.
- **Tech Stack** – Python, Streamlit, Heroku App, Tensorflow, Keras, LSTM.

➢ **CineMatch: A movie recommendation system** *Summer 2022*
Personal Project GitHub

- Developed and deployed a movie recommendation web application utilizing **machine learning**, **soft computing**, and **neural networks**, achieving an **accuracy** of **96%.**
- Utilized **Python** and various libraries including **Pandas, NumPy, Ast, CountVectorizer, Streamlit, Pickle,** and **Requests** for **data processing**, **model training**, and user interaction.
- Created a movie recommendation system that effectively suggests movies based on **user preferences**, enhancing the overall **movie-watching experience**.
- Deployed the application using Heroku App, **ensuring seamless accessibility** and **user-friendly interface**.
- **Tech Stack**: Python, Heroku App, Pandas, NumPy, Ast, CountVectorizer, Streamlit, Pickle, Requests.

➢ **MeetVerse: Online video calling application** *Winter 2022*
Team Project GitHub

- Developed MeetVerse, a **meeting platform** with **smart features**, including **gesture control**, and

avatar simulation using **motion capture technology**.

- Utilized **Mongodb, Express js, React js and Node js** for the development of the platform, ensuring seamless integration of front-end and back-end components.
- Employed **Blender** for avatar creation, providing users with a **unique** and interactive meeting experience.
- **Collaborated** with a team to ensure the platform's accessibility and **user-friendly interface**, enabling free access for all users.
- **Tech Stack**: MongoDb, Express.js, React , Node.js, Blender

➢ **Shopoholic: An E-commerce Website** *Winter 2022*
Personal Project GitHub

- Developed and deployed an **end-to-end e-commerce website** called Shopoholics, offering a wide range of shopping categories including earrings, purses, watches, and school bags.
- Utilized **HTML, CSS, and JavaScript** to create a visually appealing and **user-friendly interface** for seamless online shopping experience.
- Implemented **secure payment gateways** and ensure **smooth transaction processing** for customers.
- Implemented **product categorization** and **filtering functionalities** to enhance user navigation and improve **product discovery** on the website.
- **Tech Stack**: HTML, CSS, Javascript, Github.

Publications

➢ **Unibuddy: An AI Based AR Indoor Navigation Solution** *June 2023*
International Journal of Creative Research Thoughts | ISSN: 2320-2882 Link

- Developed a **hybrid tracking system** for efficient **indoor navigation** on mobile devices (smartphones and tablets) in **complex college campuses**, addressing the challenges faced by students in locating crucial offices, stationaries, and entry blocks in unfamiliar settings.
- Implemented **AI, AR, and GPS** technologies to create a precise and **reliable localization system**, providing a mobile assistant that helps freshmen navigate indoor spaces in real-time, considering both the position and orientation of the user.
- Demonstrated the superiority of augmented reality (AR) navigation over traditional 2D maps or paper maps by utilizing AR-based interfaces and user experiences, resulting in more effective and organic navigation experiences for users.
- Explored the limitations of GPS-enabled navigation indoors and highlighted the need for alternative solutions. Proposed the use of **AR technology** as a scalable and accurate indoor navigation system, overcoming the limitations of GPS by providing **real-time guidance** through virtual overlays on mobile devices.
- **Keywords:** AI, AR, Navigation, Indoor Navigation, Localization system, Web-based application.

➢ **StreetSafe: AI-Based Android Application for Pothole Detection** *Apr 2023*
International Journal of Creative Research Thoughts | ISSN: 2320-2882 Link

- Developed an **end-to-end pothole detection** application, StreetSafe, using **deep learning** and

machine learning techniques, with a focus on real-time detection and **accuracy** of **97%.**

- Utilized **Convolutional Neural Network** (CNN), **MobileNet**, and **SSD (Single Shot Multibox Detection)** to extract features and detect potholes in real-time camera inputs from smartphones and car dash cameras.
- Collected and preprocessed a dataset sourced from **Kaggle**, categorized potholes based on occupied pixels, and trained the model to highlight and **alert users** about potholes through a mobile application.
- Addressed the need for a robust system to detect road anomalies and mitigate accidents caused by potholes, with a goal to **improve driver and pedestrian safety** while reducing vehicle damage and maintenance costs.
- **Keywords**: Application Programming Interface, Deep Learning, Convolution Neural Network, TensorFlow, Tflite, Neural Networks, Pothole detection.

- **Stock Price Prediction Using Artificial Intelligence & Neural Networks** *Aug 2022*
  International Journal of Information Technology & Management | ISSN: 2249-4510 Link

  - Developed a **robust and accurate algorithm** using neural networks and artificial intelligence for predicting stock prices with an **accuracy of 85%**.
  - Analyzed and processed **large volumes of live data** using comprehensive algorithms to understand the shortcomings of current prediction methods.
  - Utilized advanced machine learning concepts such as **Long Short-Term Memory (LSTM)** and **artificial neural networks** for accurate stock price predictions.
  - Used Python and libraries such as **NumPy, Pandas_Data-reader, Keras, TensorFlow, and Matplotlib** for data manipulation, model building, and visualization.
  - **Keywords**: Machine Learning, Stock Price Prediction, Long Short- Term Memory, Stock Market, Artificial neural Networks, National Stock Exchanges.

- **MEETVERSE: A new way of interaction on Online Meeting Platforms** *Feb 2022*
  International Journal of Information Technology & Management | ISSN: 2249-4510 Link

  - Developed innovative techniques to **enhance the interactivity** of online meeting platforms through **avatar formation**, **avatar interaction**, and **hand gesture controls** for volume adjustment.
  - Utilized deep learning techniques, including **face recognition**, **machine learning**, and **computer vision**, to create personalized avatars for users, resulting in a more engaging and interactive meeting experience.
  - **Conducted comprehensive research** on the history and evolution of online meeting platforms, highlighting the significance of avatars in video calls and the **implementation of avatar** features in popular applications like ChatGame and Loomie Live Pro.
  - Implemented **human detection** in video, **human-computer interface design**, **3D character modeling, 3D character motion control**, and cloud-based meeting platform concepts to improve the overall functionality and user experience of online meeting platforms.

Volunteer / Position of Responsibility

- **Food Distribution for Needy** *June 2023*
  Food For Life Vrindavan (NGO)
  - Actively participated as a volunteer with **Food for Life Vrindavan**, an esteemed NGO dedicated to **providing food** and **aid** to those in need during the recent floods that struck the region.
  - Contributed to the relief efforts by **distributing food and essentials to the needy people** affected by the devastating floods in Vrindavan, **offering support and compassion during their challenging times**.
  - Through selfless volunteering, **collected numerous heartfelt blessings and expressions of gratitude** from the **flood-affected individuals, families, and communities,** fostering a sense of fulfillment in **making a positive impact on their lives**.
- **Graphic Designing Head and Health Coach** *May-2021-Feb 2023*
  Knowledge Catalyst (now known as PracEdge)
  - Volunteering with Knowledge Catalyst involved actively **contributing to the organization's online presence** by **creating engaging and creative social media posts**. Through my efforts, I helped **promote the community's activities**, events, and initiatives, **reaching a wider audience and fostering a sense of belonging** within the community.
  - As a volunteer, I took on the **responsibility of mentoring fellow members** in various designing challenges. By **sharing my knowledge and expertise**, I **guided others in developing their design skills**, encouraging a collaborative learning environment within the community.
  - In addition to my design mentoring role, I also took an active interest in **promoting the well-being of community members**. I **provided guidance, tips, and support to individuals pursuing their fitness goals**, fostering a holistic and inclusive approach to **personal growth and development**.
  - Throughout my time volunteering with Knowledge Catalyst, I actively **participated in a diverse range of activities.** From **social media management** and **design mentoring to supporting fitness enthusiasts**, I **demonstrated versatility and a commitment** to contributing to various aspects of the group's mission.

Achievements

- Stood in the **top 15** in Hackoverflow 4.0(**National Level Hackathon**) out of **3000** team 2022
- In **Google CodeJam** secured a Global rank of **3857** and All India Rank **1120** among 50k participants 2022
- College **Runner-up** in **Smart India Hackathon** in the category of Smart Automation 2022
- In **Google HashCode** secured a Global Rank **2673** and All India Rank **1090** amongst **32k** teams 2022