MEGHNA LAL

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Permanent UK Resident

SKILLS AND ACHIEVEMENTS

- Successfully brought three patented design models into production, showcasing my innovative contributions and ability to deliver impactful solutions
- I played a key role in the development of an innovative vehicle data analysis tool at Jaguar Land Rover, resulting in enhanced operational efficiency, informed data-driven decision-making, and substantial cost savings for the company
- Trained a team of 20 individuals on flashing new ECUs with Bosch and NVIDIA platforms, ensuring effective and efficient operation of the software
- Demonstrated strong leadership skills through mentorship of young professionals and students, fostering their career growth and development through regular meetings and speaking engagements

Skills

- React | Python | Bash | Linux | JavaScript | Simulink and MATLAB | Arduino | SAP & Office | PowerCase & Flow |Vector CANape Packages | CRETA | GCP | AWS

WORK EXPERIENCE

(April 23-present) **Full-Stack Developer**
Jaguar Land Rover, UK and ROI

Full-Stack developer :

- **Development of tool named Ciara Analyze**: Contributed to the creation of an innovative tool designed to analyze vehicle data, enhancing operational efficiency and data-driven decision-making for Jaguar Land Rover
- **Comprehensive Development:** end-to-end development encompassing backend algorithms, plugin creation, and frontend UI design.
- **Technical Expertise:**
    - **Backend Development:** Developed robust backend solutions using Python to process large datasets stored in MF4 or Roadcast file formats. Leveraged Google Cloud Platform (GCP) for data storage and processing, including integration with GCP buckets and internal databases.
    - **Data Handling:** Implemented data retrieval based on user-specific requests, such as car model or engine type, to achieve efficient and accurate data access. Utilized Google Cloud Task Queue to handle high volumes of data requests and processing tasks.
    - **Event Detection:** Developed features allowing users to define and detect specific events within datasets, such as pull-away or break events, enabling targeted data analysis and reducing the need to manually sift through entire datasets.
    - **Frontend Implementation:** Created intuitive and responsive frontend interfaces, ensuring a seamless and user-friendly experience with React .
    - **System Integration:** Facilitated seamless integration between disparate system components, maintaining high performance and reliability.
- **DevOps & Optimization:** Optimized system architecture and managed DevOps pipelines for development, staging, and production environments, enabling efficient deployment, scalability, and performance.
- **Collaboration & Innovation:** Worked closely with cross-functional teams to deliver a high-quality product that improved operational efficiency and data-driven decision-making for the company.
- **Efficiency & Cost-Effectiveness:** Processed four years' worth of engineer-collected data, significantly reducing analysis time. While manually analyzing one dataset of approximately 30 minutes would take an engineer the same amount of time, the tool can process and analyze 20,000 datasets in minutes. The solution is highly cost-effective, with the capability to handle 10 parallel users analyzing six months' worth of data for around £250.

(April 22-April 23) **Software Development Engineer**
Jaguar Land Rover, UK and ROI

Software developer lead for Perception engineering:

- Experienced Perception Software Developer with a proven track record in setting up and deploying flashing processes for ORIN Devkits

- Skilled in automating flashing processes of ECUs and Devkits using GitLab CI/CD pipeline, ensuring efficient and reliable deployment
- Proven ability in creating and implementing Key Performance Indicators (KPIs) for lane detection, resulting in improved accuracy and performance
- Demonstrated expertise in integrating Nvidia software and deploying it within JLR, effectively enhancing overall system performance
- Proficient in collecting and analyzing both vehicle and ground truth data, demonstrating a strong understanding of computer vision and perception techniques
- Proficient in sensor model design, with experience in creating a software-in-the-loop (SIL) environment using RoadRunner for software bug detection

(Sept 17-April 22) **Control & Software Engineer**
Jaguar Land Rover, UK and ROI

AutoTR (Auto Terrain Response) Control Calibration:

- Developed an application using OOP concepts in Matlab and Python for converting and manipulating vehicle data from MF4 format
- Implemented a surface friction model in Simulink to detect the slip of the vehicle, which is now being utilized in Defender, Range Rover, and Range Rover Sport and it has been filed for patent
- Proficient in MIL & SIL Simulations and Diagnostic simulations
- Conducted off-road vehicle testing in Sweden, Mira, Walters and Eastnor to validate software changes
- Expertise in designing model-based and software systems using MATLAB and Simulink
- Experienced in vehicle testing of simulated systems using CANape, CANoe, and CANalyzer and their interaction with ECUs
- Interfaced Inertial Measurement Units (IMU) to estimate vehicle terrain conditions
- Replaced pressure-sensing models (CVD) with a bespoke IMU capability
- Calculated friction conditions for Intelligent Driveline Dynamic (IDD) Systems
- Developed simulation of torque-based systems to match driving dynamics
- Prepared training material on operational workflows for flashing Bosch ECU using CANape enabled software

(Sept 16-Aug 17) **Aircraft Engineer**
Lufthansa, Malta

Worked on Airbus A32F, A340 and Boeing 737:

- Note: This role is not as relevant anymore. Feel free to ask for more details if interested.

(Aug 14 - Sept 14) **Tutor in Programming**
(Aug 15 - Sept 15) *Fire Tech Camp, London(UK)*

Tutor in Programming Arduino

- Note: This role is not as relevant anymore. Feel free to ask for more details if interested.

(June 12 – July 12) **Technical Assistant**
Global Display Solution (GDS) , Spagnago(IT)

Technical Assistant

- Note: This role is not as relevant anymore. Feel free to ask for more details if interested.

EDUCATION

Dec 2020 **Warwick University**
Warwick (UK)

- Postgraduate Certificate in Automotive Technology

June 2016 **Salford University**
Manchester (UK)

- BEng (Hons) Aeronautical engineering: first class honors (82%)
- Scholarship for being top 5 student
- Awarded the Innovation price for my Thesis by the international Committee of Engineering (BEng Dissertation: Morphing control surface of Shape Memory Alloys (SMA) by Solar Energy)

June 2013 **Marzotto Technical Institute**
Valdagno(IT)

- Computer Science and Telecommunication Diploma
- Programmed on Arduino the algorithm to detect object around the range of 4 meter and awarded National award
- Final year Thesis: Arduino Programmed Radar