**Sourav Panda**

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**Overview**

Highly motivated Machine Learning Engineer with an MSc in Data Science and 4 years of analytical experience. Proficient in developing and deploying innovative machine learning solutions, leveraging analytical thinking and technical expertise to tackle complex challenges. Thrive in fast-paced environments, committed to continuous learning, and staying updated with the latest advancements in AI . Driven by curiosity and enthusiasm for taking on new initiatives.

**Skills**

* **Technical Skills:** 3D Machine Learning, Python (Scikit-learn, Pandas, NumPy, PyTorch, TensorFlow, sqlite3, OpenCV, open3D), Data Visualisation (Plotly, Seaborn, Matplotlib), Point Cloud Segmentation,3D Reconstruction, SQL, Statistical Machine Learning, Deep Learning, Docker, AWS (SageMaker, S3, IoT), Microsoft Azure, GIT, flask, Linux.
* **Frameworks and Tools:** Microsoft Excel, Business Objects Business Intelligence, Business Warehouse, Reporting in WebI (Web Intelligence), Power BI, bexQuery and Unity.
* **Soft Skills:** Communication, Teamwork, Leadership.
* **Certifications:** Microsoft Azure-900 certified, Generative AI with Large Language Models.

**Work Experience**

# Rebellion Oxford, UK

***Jr Machine Learning Engineer***Dec 2023 - Present

* **Game Level from LiDAR Scans**
  + Implemented Point Net architecture for point cloud segmentation to analyse and process LiDAR scans of real-world environments.
  + Developed techniques to convert segmented point clouds into 3D meshes and assets suitable for game levels using open3D and Cloud Compare.
  + Currently working on creating a height map of the scanned environment to aid in level reconstruction.
  + Developing methods to combine terrain meshes, object placements, and game assets to procedurally generate new, realistic game levels from LiDAR data.
* **AI Sentinel Artistry Denoiser System​**
  + Designed and developed DirArchitect, a tool that automates the creation of agreed directory structures based on project details, ensuring consistency across all project directories and improving workflow efficiency.
  + Collaborated in the development and maintenance of database tables to support data organization and retrieval, enhancing the system's backend capabilities.
  + Assisted by supporting in data preparation efforts to improve denoising accuracy and overall system performance.

# Audio Strip London, UK (remote)

***Data Scientist*** Sept 2023 – Nov 2023

* **Music Source Separation using Deep Learning:**
  + Evaluated and fine-tuned state-of-the-art model for music source separation to improve signal-distortion ratio (SDR) metrics.
  + Conducted extensive benchmarking and comparative analysis across various datasets and genres. Implemented data augmentation techniques, such as adding Gaussian noise, to assess model robustness and generalization ability.
  + Achieved SDR of 6.35 on unseen data, further improving to 7.29 after fine-tuning, demonstrating strong generalization capabilities.

# Yunex Traffic Poole, UK

***Data Scientist R&D***Aug 2022 - Aug 2023

* **Developed AI chatbot prototype by leveraging Large Language Models (LLMs):**
  + Prototyped chatbot using FLANT 5 from hugging face as base LLM after trying various models by prompt engineering method.
  + Used LoRA for fine-tuning and iteratively experimented with different LLM models to maximize performance.
  + Presented prototype, proposed roadmap for additional capabilities, and conducted learn and grow session to educate engineering team on chatbot technology.
* **Automatic car parking using camera:**
  + Architected and deployed neural network model with base model as mobile net, using transfer learning to classify 196 car types with Flask web app on AWS.
  + Boosted model accuracy by analysing and reducing to ten classes using statistical methods for edge deployment.
  + Enhanced in/out car detection by extracting and processing data from video analysis. Calculated angle and length by designing and implementing efficient classification using KNN clustering algorithm.
* **Analysed product performance of different traffic controllers:**
  + Conducted data collection, cleaning, and regression analysis to understand factors impacting traffic delay times.
  + Developed interactive Power BI dashboards and executive summary report with actionable insights and recommendations.
* **Sensory data collection on 5G router:**
  + Upgraded legacy architecture to 5G router, doubling sensor data collection speed and designing virtual access points for improved efficiency.
  + Developed IoT testing framework reducing pre-deployment defects by 40%; created Docker image to standardize and scale data collection application.
* **Business Impact project to** **optimize factory training through AR simulation:**
  + Reduced new hire training time by 50% and increased factory efficiency 20% through immersive learning.
  + Partnered with cross-functional teams to identify improvement opportunities.
  + Conducted analysis to assess operations, pinpoint pain points, and proposed AR solutions to streamline training.
  + Developed immersive AR Unity simulation using ARKit to replicate factory environment.
  + Designed interactive 3D experiences replacing lengthy training manuals.

**Accenture** Bangalore, India

***Analyst***July 2019 - Aug 2021

* + Handled large datasets in media and travel domains, developing data-driven solutions in an agile environment.
  + Managed data warehousing, wrote SQL queries, and migrated 1500+ BI reports in 1 week using innovative field remapping techniques.
  + Built data models and visualizations to support decision-making, while maintaining data integrity across various sources.
  + Enhanced client communication and negotiation skills through direct client interactions.

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| **Vedanta** | Jharsuguda, India |
| ***Intern*** | May2017 -July 2017 |

* + Implemented new runtime strategy reducing power costs by £755 annually and decreasing wear and tear on machinery by analysing the data of different parameters like heat and humidity.

**Education**

# MSc Data Science, University of Bath Sept 2021-2023 Bath, UK

* + Graduated by achieving an average of 71.3%
  + **Relevant Modules:** Applied Data Science (77), Statistics (84), Machine Learning (72.5), and Software for Data Science (82), Bayesian machine learning (80)

# B-Tech, Electrical and Electronics Engineering, SRM June 2015 - 2019 Chennai, IN

* + Graduated with an average of 81.77% first class with distinction.
  + **Relevant Modules:** Calculus (88), Discrete Mathematics (88), Probability and Statistics (80).
  + Led solar racing team to win Future Car award; spearheaded final year project applying image processing for energy conservation.
  + Published research paper: "Smart Classroom Setup Using Microcontrollers and Multiple Sensors" in TEST magazine (May/June 2020), demonstrating practical application of engineering concepts.