# SPANDAN RAJ

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## Education

| **VIT Bhopal University** | **Expected 2026** |
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*Bachelor of Technology (B.Tech) in Computer Science & Engineering , CGPA- 8.5* — *Madhya Pradesh*

| **DAV Public School** | **July 2021** |
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*Senior Secondary (Class 12) – CBSE, Percentage: 85.6%* — *Berhampur, Odisha*

| **DAV Public School** | **July 2019** |
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*Secondary Education (Class 10) – CBSE, Percentage: 91.6%* — *Berhampur, Odisha*

## Technical Skills

**Programming Languages**: C++, Java, Python, HTML, CSS, JavaScript
**Libraries/Frameworks**: TensorFlow, PyTorch, Scikit-learn, OpenCV, Pandas, NumPy, Matplotlib, FastAPI
**Machine Learning & Data Science**: Supervised Learning, Unsupervised Learning, CNNs, LSTMs
**Tools & Platforms**: GitHub, FastAPI, Ngrok, Postman, AWS
**Software Development**: Data Structures & Algorithms, Object-Oriented Programming (OOP)

## Projects

**Failure Forecasting in IoT Using LSTM Autoencoder + LSTM** | *Python, TensorFlow*  **April 2025**

- Developed a two-stage deep learning pipeline for anomaly detection and failure prediction in IoT sensor data.
- Implemented an LSTM autoencoder for anomaly detection and a separate LSTM network for failure forecasting.
- Achieved 99.69% accuracy in fault prediction using a sliding-window approach and threshold-based anomaly detection.

**Farm Fusion** | *Python, TensorFlow, FastAPI,* |farm-fusion-sigma.vercel.app/  **March 2025**

- Engineered an AI-powered platform providing smart farming solutions including crop yield prediction, fertilizer recommendation, and pest detection.
- Integrated multiple ML models and deployed them through FastAPI for seamless access via a web dashboard.

**Culinary Canvas** | *Python, React, FastAPI* |sparkit14.github.io/Culinary-Canvas/  **November 2023**

- Developed a full-stack recipe recommendation web application combining user preferences, ingredient availability, and nutritional goals.
- Designed an intuitive React-based front-end interface to search, filter, and save personalized recipes.

**Gesture Controlled Virtual Mouse** | *Python, MediaPipe, Pybind11* |github.com/Sparkit14/Virtual-Mouse **September 2024**

- Developed an innovative human-computer interaction system enabling virtual control of all I/O operations using static/dynamic hand gestures and voice commands.
- Implemented state-of-the-art Machine Learning and Computer Vision algorithms with CNNs via MediaPipe for real-time hand gesture recognition without additional hardware.
- Designed two modules: one using direct hand tracking with MediaPipe Hand Detection, and another supporting glove-based detection for enhanced accuracy.

## Certifications

| **Advanced MERN Stack Course** | **July 2025** |
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*Algocamp* — *Online*

| **AWS Solutions Architect - Associate Certification Program** | **April 2025** |
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*Ethnus (Codemithra)* — *Online*

| **Salesforce Developer Certification Program** | **April 2025** |
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*Ethnus (Codemithra)* — *Online*

| **HTML, CSS, and Javascript for Web Developers** | **December 2023** |
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*Google (Coursera)* — *Online*

## Additional Information

- Focusing on Data Structures  Algorithms.
- Participated in 2024 InnovateYou Hackathon, Pune.
- Led the Event Management team of a university club.