

# Abhinandan Sudharsan

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## PROJECTS

### Bengaluru Metro Spatial Econometrics | Python, Scikit-Learn, Statsmodels, Geopy

**Nov 2025**

- Built a geospatial pipeline using Geopy and transit data to model property values, employing a Spatial Autoregressive (SAR) model to quantify neighbourhood spillover and validate price clustering via Moran's I.
- Engineered a Gradient Boosting Regressor ( $R^2 = 0.82$ ) to predict prices, utilizing Partial Dependence Plots to interpret the non-linear impact of metro proximity and urban accessibility metrics.

### Electronics Retail Management | PostgreSQL, Express.js, Node.js, REST API

**Nov 2025**

- Architected a full-stack retail platform using **PostgreSQL** and **Express.js** REST API to automate inventory management by 70% and enable real-time stock tracking.
- Optimised business intelligence by implementing advanced SQL queries and data aggregation logic, delivering actionable insights through automated sales performance.

### Hybrid Biometric Watermarking for Audio Verification | Python, PyTorch

**Oct 2025**

- Developed a two-factor authentication system using a Speaker Encoder CNN to generate 64-bit biometric hashes for real-time verification and deepfake detection.
- Implemented a 1D-CNN GAN framework for inaudible biometric embedding, facilitating end-to-end provenance, a framework applicable to securing sensitive financial voice-auth systems.
- Implemented multi-stage tamper detection pipelines to ensure integrity and prevent unauthorised record modification.

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## EXPERIENCE

### Design Member | Shunya, PES University

**Jan 2026 - Present**

- Designed high-quality marketing materials, including social media assets, posters, and merchandise.
- Partnered with the marketing team to translate complex event concepts into engaging visual narratives using Figma.

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## EDUCATION

### B.Tech CSE & AIML, PES University

**Aug 2023 - May 2027**

CGPA: 8.11

### CBSE, National Centre for Excellence

**Jun 2021 - Mar 2023**

PCMC: 88%

### ICSE, New Horizon Public School

**Jun 2009 - Mar 2021**

93.8%

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## ACHIEVEMENTS

**House Captain** - New Horizon Public School

## CERTIFICATIONS

**1x CN Rao Scholarship** - awarded to the top 20% of students

**Hackerrank** - Problem Solving (Basic)

**Smart India Hackathon** - Top 30 teams in PES University  
selections

**Kaggle** - Intro to Machine Learning

**Goethe Institut** - ZERTIFIKAT A1 FIT IN DEUTSCH  
**AWS** - Introduction to EC2 and VPC

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## TECHNICAL SKILLS

- **Languages:** Python, C, C++, JavaScript, Kotlin, Lua, HTML/CSS, SQL, Verilog, toml
- **Databases:** MySQL, PostgreSQL, MongoDB, Redis, Neo4j
- **ML + Data Analysis:** PyTorch, TensorFlow, Numpy, Pandas, Matplotlib, BeautifulSoup, Scikit-Learn, Generative AI, NLP
- **Developer Tools:** Linux, GIT, VS Code, MongoDB Compass, Vim
- **Web and Mobile:** React, Node.js, Express.js, REST API, Android Studio
- **Concepts:** Data Structures & Algorithms, Full stack Development, Software Engineering

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## LANGUAGES

English, Tamil, Kannada, Hindi, German (A1)