

# Ankita Manubhai Patel

Leicester, UK | 073798 47533 | [email.ankitapatel@gmail.com](mailto:email.ankitapatel@gmail.com) | [linkedin](#) | [github](#)

## Professional Summary:

Software & Data Engineer at Space Park/NCEO Leicester specializing in high-throughput satellite and sensor data pipelines, digital twin systems, and HPC-scale workflows. Experienced in building reproducible Python back ends on JASMIN/ALICE, automating legacy EO processing (IDL → Python) and integrating ML (XGBoost, PyTorch) into production pipelines. Skilled in hardware-in-the-loop acquisition with cameras, motion stages, and diverse sensor platforms, with growing expertise in C/C++ and embedded development. Adept at turning cutting-edge research into operational software—delivering scalable data services, clear KPIs, CI/CD validation, and stakeholder-ready dashboards for Earth observation and wireless sensing applications.

## Technical Skills:

**Technology known:** Python (Flask, Django, FastAPI), python libraries like NumPy, SciPy, Pandas, Xarray , and Matplotlib for data engineering tasks, C#, HTML5, CSS3, Bootstrap, AWS, JavaScript, jQuery, AJAX, RESTful API, React.js

**ML & Analytics:** XGBoost, scikit-learn; anomaly detection; k-NN/FAISS; experiment design & metrics, Basic Pytorch/Tourchvision

**HPC & Performance:** JASMIN/ALICE HPC; vectorization; chunked NetCDF; parallel I/O; profiling

**Scientific Techs known:** Basic knowledge of IDL, Fortran

**Database known:** MySQL, Microsoft SQL Server, MongoDB (Non-relational), SQLite

**Operating System known:** Windows, Linux distributions

**Version control tools:** Git/GitHub, SVN

**Other Tools:** Proficiency in MS Excel/VBA, Visual Studio Code, PyCharm, Jupyter Notebook

## Education:

### Jan 2020 – May 2022 MSc in Advanced Computer Science, University of Leicester, UK

Relevant modules include Foundation of Cybersecurity; Financial Services Information System; Generative Development; Internet & Cloud Computing; Agile Cloud Automation; Mobile and Web application; Software Measurement and Quality Assurance

### Aug 2007 – June 2011 BEng in Computer, Veer Narmad South Gujarat University, Surat India

Relevant modules include Information Technology & Management; Database management System; Computer Networks; Information Security & Applications; Internet technology and applications.

## Software Work Experience:

### 1. University of Leicester (May 2023 to Present) as Software and Data Engineer.

- Refactored legacy EO processing from f EUMETSAT Metop-B **IDL→Python**, cutting wall-clock by ~80% and reducing maintenance risk via type-safe modules, tests, and clearer interfaces.
- Built a Digital Twin for ESAT-1C: **ML-assisted thermal/telemetry** modelling with automated data ingest and validation; improved prediction accuracy and created performance dashboards for scientists.
- Designed a **high-throughput data pipeline** (40+ GB GRASP NetCDF climatology) with FAISS-accelerated kNN to synthesize multi-band satellite view scenes; implemented profiling and caching to remove bottlenecks and stabilize memory.
- **Developed sensor/vision tooling:** Python control of Ximea cameras + motorized stages to capture hyperspectral cubes; added data QC and recovery for robust runs (real-time constraints relevant to autonomy).
- **Prototype Scientific Instrumentation:** Developed Python interfaces for Ximea and Mantis Dragonfly hyperspectral cameras, capturing and processing 3D data cubes to extract target-wavelength images.
- Designed a **Land Surface Temperature (LST) visualization** tool using Cartopy on JASMIN HPC, processing netCDF files and integrating NASA's bathymetry colormaps.
- Embedded/edge work: Raspberry Pi camera/sensors data pipelines and Jetson Orin Nano algorithm bring-up; careful profiling, memory control, and logging.
- Authored technical documentation, user how-tos, and training slides; contributed to project plans and reporting for cross-org partners (NCEO, SPL).
- Instituted basic CI/CD (GitHub Actions) and reproducible builds; practiced secure coding (IAM on AWS).

### 2. Kartum Infotech (March 2021 – Jan 2022) as Software Developer Intern (Full-time)

- Developed and maintained code for in-house and client websites primarily using HTML, CSS, Sass, JavaScript, jQuery. Write technical design documents and keeping track of software developments.
- Built full-stack web apps using Django, Flask, MySQL, and JavaScript, reducing client-side load times by 25%.
- Implemented RESTful APIs for internal portals and optimized database queries.
- Conducted code reviews and unit testing, ensuring 95%+ reliability.

## Projects:

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### **MSc Thesis: Yoga Class Planner Web App using Django:**

- Implemented Role-based Access Control with customized dashboards, advanced search functionality, secure JWT authentication, and automated class scheduling. Enhanced usability with a drag-and-drop interface for yoga class preparation and session planning. [Link](#)

### **Mobile Responsive Web Application with Covid-19 case analysis | Python Flask**

- Developed a mobile-responsive web application with a Flask–MySQL backend and a dynamic front end in HTML5, CSS3, and JavaScript. Implemented secure user registration/login with field-level validation, role-based dashboards for personalized access, and interactive vendor dashboards featuring advanced data visualizations for COVID-19 case analysis. [Link](#)

## Other Work Experience:

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### **1. Clarendon Mews (June 2022 - June 2023) as Care Assistance (full-time)**

- Assisted residents with personal care, mobility, meals, and daily routines, ensuring dignity, comfort, and independence.
- Supported residents with severe medical conditions, including late-stage dementia, providing compassionate and specialist care.
- Monitored health and wellbeing, keeping accurate records and reporting changes while offering companionship and emotional support.

### **2. Precious Hope Health and Home Care (April 2020 – May 2022) as Care Worker (Part-time)**

- Demonstrated strong **problem-solving skills** by addressing client challenges and adapting care plans to meet individual requirements.
- Enhanced **communication and interpersonal skills** through regular interaction with clients, families, and healthcare professionals.

### **3. Amar Enterprise (Jan 2018 – Dec 2019) as E-Commerce Business Development Manager (Full-time)**

- Led organizational changes to implement e-business strategies, achieving targeted growth on B2B (Indiamart, Tradeindia, Alibaba) and B2C platforms (Flipkart, Amazon, Snapdeal).
- Built and maintained strong client relationships through effective communication and tailored solutions, driving account development and sales growth.
- Developed problem-solving strategies to address client needs and improve brand engagement through digital media marketing and innovative branding initiatives.

### **4. Jani Import-Export (Feb 2016 - Dec 2017) as B2B Export Executive (Full-time)**

- Designed and executed strategies to secure export orders from international clients, contributing to a significant increase in company revenue.
- Collaborated with cross-functional teams to manage domestic and international shipments, ensuring timely delivery and client satisfaction.
- Utilized **analytical and problem-solving skills** to maintain updated price sheets (FAS, FOB, CFR, CIF) and streamline import/export documentation processes.

### **5. Fashion Plus Lace (Dec 2013 - Jan 2016) as B2B Business Sales Executive (Full-time)**

- Managed product inventory and online presence on B2B platforms (Tradeindia, Indiamart), ensuring accurate and up-to-date product listings.
- Built long-term client relationships through effective communication and tailored solutions, driving sales growth and customer retention.
- Demonstrated teamwork by collaborating with marketing and design teams to create compelling product visuals and branding strategies.

### **6. D.V. Das Manpower (July 2011 - Nov 2013) as Client Relationship Manager (Full-time)**

- Conducted face-to-face meetings with clients and job candidates, building a robust database and generating new business opportunities.
- Developed strong communication negotiation skills through cold calling, lead generation, and client servicing.