

# NIKHIL SETH

## Data & Research Analyst

Visakhapatnam, Andhra Pradesh, India

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### Profile Summary

Analytical research professional experienced in statistical modeling, machine learning evaluation, data preprocessing, and quantitative analysis. Skilled in extracting insights from complex datasets, designing evaluation frameworks, and developing predictive models. Strong foundation in Python-based analytics, exploratory data analysis, and interpreting model outcomes to support research and decision-making. Experienced with ML pipelines, image analysis, and metric-driven performance benchmarking.

### Analytical Skill Set

Python • NumPy • Pandas • Scikit-learn • Statistical Modeling • Data Visualization • Machine Learning • Research Analysis • SQL • Data Cleaning • Model Evaluation • EDA • YOLO-based Detection Models

### Experience

#### Research Intern – Ship Detection & Camouflage Recognition

May 2025 – Present

DRDO (Defence Research and Development Organisation)

Visakhapatnam, India

- Conducting analytical research on ship-type identification and camouflage recognition using **SAR imagery** from COD10K and Sentinel-1 datasets.
- Building and evaluating **YOLOv11 detection models**, focusing on metric-driven performance improvements under low-contrast maritime conditions.
- Applying anchor tuning, augmentations, and preprocessing to boost detection precision and recall across challenging datasets.
- Managing the complete analytical pipeline: dataset curation, preprocessing, annotation workflows, model training, validation, and benchmarking (mAP, IoU).
- Providing research insights toward improving SAR-based maritime surveillance strategies.

### Projects

#### AI Research Assistant Platform

2025

Python, NLP APIs, MongoDB GridFS

- Developed a research-analysis platform supporting summarization, semantic search, and plagiarism detection using NLP-based pipelines.
- Optimized document retrieval and processing, improving data access time by **35%**.
- Conducted feature-level evaluation on summarization outputs to assess consistency and extraction accuracy.
- Reduced manual literature review time by **50%** through automated text analysis workflows.
- **Links:** 🌐 GitHub — 🌐 Live Demo

#### Muscle Imbalance Identification Using 1RM and FM Scores

2024

Statistical Analysis, Ensemble Modeling

- Analyzed **1RM strength data** and **fat-mass asymmetry** to identify predictors of left-right and agonist-antagonist muscle imbalance.
- Built a statistical analysis-based model achieving **70% accuracy** in imbalance prediction.
- Developed a majority-voting ensemble attaining **65% accuracy**, validating cross-method consistency.
- Performed exploratory and feature-level statistical evaluation to quantify strength-FM correlations.

### Technical Skills

**Analytical Tools:** Python, NumPy, Pandas, Scikit-learn

**Statistical Skills:** Hypothesis Testing, Regression Models, Feature Analysis, Data Sampling

**Machine Learning:** Model Training, Evaluation Metrics (Accuracy, F1, IoU, mAP), YOLO-based Detection

**Data Operations:** SQL, Data Cleaning, Preprocessing, EDA, Large Dataset Handling

**Other:** Report Writing, Research Documentation, Visualization, Git