

Ravi Yadav

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LinkedIn • Github • Leetcode • Personal Portfolio



EDUCATION

Year	Degree/Exam	Institute	CGPA/Marks
2023-2027	Bachelor of Technology (Artificial intelligence)	Newton School of Technology , Rishihood University	7.05/10.0
2021-2022	Intermediate (Class XII)	Malviya Convent School	83.0%
2019-2020	Matriculation (Class X)	St. Edmund's school	91.1%

ACHIEVEMENTS

- **IEEE PES Energy Shark Tank 2026:** FlexGrid pitch in the Top 5 at APPEEC, Singapore; 3rd on the final leaderboard.
- **NST Startup Foundry 2026:** 1st for Jarvis (AI personal intelligence); pitched to Google Cloud and Microsoft for Startups.
- **JEE Advanced 2023:** AIR 6522 (180,000+ candidates). **JEE Main:** 97.84 percentile (1.1M+ candidates).
- **Jaipur Under 16 Cricket Team :** Represented Jaipur at the Under 16 level, developing teamwork, and leadership.

PUBLICATIONS

KAT-PatchTST: Physics-Informed Forecasting with Kirchhoff Conservation, 18th Asia Pacific Power and Energy Engineering Conference (IEEE APPEEC) — Singapore August 2026

- C. Murali Madhav, **Ravi Yadav (2nd author)**, K. Mehra, A. Tewary and S. Aggarwal. **Accepted and presented** at IEEE APPEEC 2026, Singapore (Paper ID 190); publication in the IEEE conference proceedings is pending.
- Proposed a **physics-informed load forecaster** combining PatchTST, TimeXer and a **Kirchhoff conservation regularizer**, reaching **3.65% MAPE** on the U.S. EIA-930 grid dataset across **six balancing authorities**.
- **Provisional patent filed** for the method. The paper is Stage 1 of the Watt-IF research project; Stages 2-3 (balancing-authority interchange feasibility and grid partitioning to cut allocation failures) are **targeting ICML** submission.

INTERNSHIPS

Software Engineer Intern January 2025 - April 2025
Algocept Remote

- Resolved **20+ UI/UX and responsiveness issues** in a **React.js** and **Tailwind CSS** admin dashboard, so it behaves consistently on desktop, tablet and mobile.
- Cut initial dashboard load time by **~50%** by adding **server-side pagination** to a list of **500+ users**, fetching one page at a time instead of every record at once.
- Developed a **RESTful API** with **NestJS**, **TypeScript** and **MongoDB** supporting **3 country-specific configurations**, so each region serves its own footer content without frontend code changes.

PROJECTS

Automated Malaria Cell Detection ([Github](#)) October 2026

- Manual microscopy of blood smears is **slow and error-prone**; our team reproduced an **EfficientNet ensemble** (Marques et al., 2022) that automatically detects **malaria-infected red blood cells** in thin blood smear images.
- Trained **10 EfficientNet-B0 models** with **10-fold cross-validation** on **27,558 NIH cell images**, one RTX 4090 per fold in parallel (**~11 min per fold** vs. 4 h 46 min in the paper), with **32 fidelity tests** against its code.
- Reached **97.62% ensemble accuracy** and **99.73% ROC-AUC**, within **1 pp of the paper**, and found **2 errors in the paper**; I **built the results presentation** and **verified the reported metrics** against experiment outputs.

ForestLens: Tree Crown Detection & Canopy Area Estimation ([Github](#)) ([Demo](#)) September 2026

- Carbon programs need **per-tree counts and canopy area** from high-res satellite imagery, but pretrained detectors return **confident but wrong numbers** when imagery differs from the resolution they were trained on.
- Built a **Streamlit geospatial app** with **tiled DeepForest detection**, IoU duplicate suppression, **SAM 2 crown masks** and GSD-based area from **Rasterio GeoTIFFs**, backed by **55 automated tests** and CSV/GeoJSON exports.
- Found DeepForest fails at native **0.305 m/px** (5.8 trees/ha, 15 m crowns); **resampling to its training scale** gave **71 trees/ha with 5.2 m crowns** (real: 4-8 m), and the app **withholds numbers it cannot justify**.

Optiforge : Neural Options Pricing ([Github](#)) ([Demo](#)) September 2025

- Black-Scholes assumes **constant volatility** and log-normal returns, assumptions that **break down in real markets** during volatility spikes and at extreme strikes, leading to **systematically mispriced options**.
- Trained **8 MLP and LSTM pricing models** in TensorFlow on **420K synthetic** and **~32K real AAPL options** (2021-23), each with and without **GARCH(1,1) volatility** features, benchmarked against **Black-Scholes** pricing.
- Learned the Black-Scholes pricing surface at **R² 0.99998** and shipped a **live Streamlit dashboard** with **heatmaps** and **sensitivity analysis** comparing **ML and analytical pricing** side by side across all **8 model variants**.

SKILLS

- **Computer Language:** SQL, HTML, CSS, JavaScript, Python
- **Courses:** Deep Learning (DL), Data Structure, Analytics
- **Databases & Data Tools:** MySQL, MongoDB, PostgreSQL
- **AI / ML:** LLM, OpenAI API, Machine Learning, Matplotlib & seaborn, PyTorch
- **Cloud & DevOps:** Git and Github, GitHub Actions
- **Frameworks & Libraries:** NumPy, React, Node.js, Express JS, Pandas, Tailwind CSS, Scikit-learn

EXTRA-CURRICULAR ACTIVITIES

- Mentored **10+** students in Data Structures & Algorithms; volunteer at **MoreThanMe NGO**.
- **IEEE Student Member** : Engaged with IEEE's student and professional engineering community.