

# BADAL

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## EDUCATION

**National Institute of Technology Kurukshetra**

May 2026 Present

B.TECH. in Information Technology

**CGPA: 7.86**

**Intermediate/+2 (CBSE)**

March 2022

Army Public School Chandimandir

## SKILLS

**Languages:** Python, C++, SQL

**Technologies & Tools:** TensorFlow, PyTorch, Relational Databases, CRM Systems, GitHub, Agile Methodologies (Scrum, Kanban), Cloud Computing, Machine Learning, Deep Learning

**Technical Skills:** Object-Oriented Programming (OOP), Data Structures and Algorithms, Data Pipeline Development (Data Cleaning, Processing, Analysis), Model Deployment, Infrastructure Design, Automated Testing

**Soft Skills:** Problem-Solving Skills, Analytical Thinking, Self-Starter, Collaboration, Adaptability, Growth-Oriented Mindset

## PROJECTS

**High-Performance Computing for Option Pricing** ([Source Code](#))

Nov 2024

- Developed a high-performance **parallelized system** for option pricing using the Black-Scholes model.
- Implemented **Monte Carlo simulations** and optimized for multi-core processors, resulting in a **40% reduction in computation time**.
- Leveraged GPU acceleration using **CUDA** to further improve computational efficiency in large-scale simulations.
- Enhanced precision and speed of financial computations, improving system performance for real-time trading.

**Decision Tree Analysis via DP and A\* for Financial Risk Assessment** ([Source Code](#))

Sep 2023

- Developed a **Tree Diff Algorithm** to analyze and compare changes in **financial decision trees**, enabling real-time updates to **risk assessments** based on market fluctuations.
- Optimized tree comparisons using **Dynamic Programming**, reducing processing time by **30%**.
- Integrated **machine learning** models to predict market trends, enhancing adaptability to market shifts.

**Expense Tracking and Reporting System** ([Source Code](#))

Mar 2024

- Developed a scalable **data pipeline** for cleaning, processing, and analyzing large expense datasets, reducing data preparation time by **45%**.
- Implemented **machine learning models** with **TensorFlow** to detect anomalies and predict expense trends, improving fraud detection accuracy by **30%**.
- Integrated **machine learning** models to predict market trends, enhancing adaptability to market shifts.

**Dynamic YouTube Data Scraping and Analysis** ([Source Code](#))

Feb 2024

- Developed a dynamic **YouTube data scraping** tool using **YouTube APIs**, capable of generating top 500 video lists for multiple genres based on real-time inputs, **increasing data retrieval efficiency**.
- Developed and implemented **Python scripts** to extract data from various web sources, **improving data collection efficiency by 30%**.
- Automated deployment of analytics workflows via **CI/CD pipelines**, reducing deployment cycles by **25%**.

## AWARDS AND CERTIFICATES

- Winner: Build an autonomous maze solver robot competition at NIT Kurukshetra's Technical Fest.
- Finalist in **Coderush 4.0 Hackathon**.
- Certifications: **C++, Spell B Competition** (First Place), and **Microsoft Certified: Azure AI**
- Solved **450+ questions on LeetCode**.