

# Darrin Bright

Generative AI | Deep Learning | Software Engineering

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## Education

### Vellore Institute of Technology (VIT)

Integrated Master of Technology in Software Engineering

CGPA: 8.99 Vellore, India

2022-2027

- **Relevant Coursework:** Artificial Intelligence (AI), Machine Learning (ML), Natural Language Processing, Data Mining, Computer Networks, Data Structures and Algorithms, Database Management Systems, Operating Systems, Python Programming, Object Oriented Programming

### Chettinad Vidyashram, Chennai

AISSCE Class 12

Grade: 90.6% Chennai, India

2020-2021

- **Achievements:** General Proficiency (GP)- 2012 and 2013

## Experience

### Astute

Vellore, India

Project Manager and Technical Lead - Intern

October 2024 - April 2025

- Developed an AI-powered SEO automation platform using **Gemini-Flash** that integrates keyword research, content optimization and technical auditing using **SERP API** and **DataforSEO** for data extraction and analysis.
- Implemented website structure analysis with **BeautifulSoup** for HTML parsing and extraction of elements, creating automated solutions for identifying on-page optimization opportunities and generating technical SEO assets including sitemaps and robots.txt files.

Generative AI & ML Engineer- Intern

July 2024 - October 2024

- Built an SEO-optimized blog generator using **Gemini-Flash** that analyzes market trends by extracting high-potential keywords from **Google Ads Keyword Planner** and **Google Trends** data, evaluating factors including search volume, interest over time, growth rate, CPC, and demographics.
- Developed Social Spark model, an automated system for **video advertisements** and **poster generation**, combining **Stable Diffusion** for poster design and Gemini for tagline creation with optimized tagline placement.

### Vicuna Kouture

Vellore, India

AI Specialist- Intern

July 2024 - August 2024

- Experimented with various **text-to-image diffusion** models to generate unique t-shirt designs, achieving optimal results with the **Stable Diffusion** model.
- Performed extensive **prompt engineering** to refine and identify the most effective prompts for generating visually appealing outputs.
- Collaborated with the back-end team to integrate the AI model using **FASTAPI**, ensuring smooth deployment.

### IEEE Robotics and Automation Society

Vellore, India

Chairperson

December 2024 - Present

- Managing a chapter of over **500** students, organizing **hackathons**, **workshops**, and **tech talks** to inspire learning in robotics and automation.
- Mentored a team of juniors by conducting sessions on **ML** and **Generative AI** frameworks like **LangChain** to enhance their skills and knowledge in the field of AI and automation.

## Technical Projects

### Precision Agriculture using Deep Learning

April 2025 - Present

GitHub Link

- Developing an agriculture platform that integrates soil parameters with plant imagery, leveraging a **ResNet-50 CNN** for crop disease identification and a regression model for yield prediction and market price forecasting.
- Incorporating **Gemini-2.0-Flash LLM** to analyze predictive outputs and generate actionable agronomic insights, thereby delivering tailored crop management recommendations.
- Implementing a **multilingual chatbot interface** powered by transformer-based dialogue systems to facilitate real-time support and dynamic decision-making for diverse farming communities.

Quest2Clip - Multimedia Content Generation

April 2025

GitHub Link

- Developed an end-to-end multimedia content generation system by combining dynamically generated scripts and audio with relevant visual content.
- Integrated **Google's Gemini 2.0 Flash** for script generation and implemented a dual-source media acquisition system that pulls visuals from both **Pexels API** and **YouTube using yt-dlp**.
- Integrated a **TTS pipeline** using Hugging Face's SpeechT5 to synthesize speech.
- Developed a video production pipeline with **MoviePy** and **FFmpeg** that processes multiple video clips, adds dynamically generated captions, and synchronizes with generated speech output.

Real-Time Human Activity Recognition with Transfer Learning

October 2024

GitHub Link

- Developed a **CNN-based** action classifier using a custom-curated dataset of real-world images to differentiate between running and walking.
- Adopted **transfer learning** with **VGG16** by integrating pre-trained convolutional layers to boost feature extraction and reduce training time.
- Implemented **data augmentation** and preprocessing techniques to improve overall model performance.
- Utilized **Keras Tuner** for **hyperparameter optimization**, achieving a best **validation accuracy** of **84.86%** and a **test accuracy** of **86.92%**.

Hybrid Neural Network for Stock Prediction

October 2024

GitHub Link

- Developed a hybrid stock prediction model combining **Long Short-Term Memory** networks for capturing temporal dependencies and **Multi-Layer Perceptrons** for non-linear feature extraction.
- Engineered a robust data preprocessing pipeline using **MinMax normalization** and a sliding window approach to convert raw stock prices into effective sequential inputs.
- Achieved a **55.66% reduction in Mean Squared Error** and a **38.65% decrease in Mean Absolute Error** by integrating MLP with LSTM, significantly enhancing forecasting accuracy.

Real-Time Vehicle Detection and Tracking

June 2024

GitHub Link

- Utilized **YOLOv5** for vehicle detection and **SORT** (Simple Online and Realtime Tracking) for multi-object tracking.
- Performed vehicle counting by leveraging SORT's built-in track association mechanism, which uses the **Hungarian algorithm** for matching detections with existing tracks.

Skills

Languages	Python   C++   C   SQL   HTML   CSS   JavaScript
Library & Framework	Langchain   TensorFlow   Keras   OpenCV   NumPy   Pandas   Scikit-learn   NLTK   FAISS   Matplotlib   Seaborn
Database	MYSQL   Vector Database
AI/ML Techniques	Supervised Learning   Unsupervised Learning   Artificial Neural Networks   Convolutional Neural Networks   Transformers   Retrieval Augmented Generation   Natural Language Processing   Deep Learning   Large Language Models
Certification	Machine Learning A-Z, Udemy

Honors and Awards

Second Runners up of HackWar Hackathon, Vellore Institute of Technology, 2025
Runners up of Startup Demo Day, Vellore Institute of Technology, 2025
Winners of Project 2039 Hackathon, Vellore Institute of Technology, 2024
Winners of Alphaforge Ideathon, Vellore Institute of Technology, 2024
Runners up of Biomimicry Innovation Challenge, Vellore Institute of Technology, 2024

Extra-Curricular

Volunteer   National Service Scheme, NGO
Engaged with students at government schools and conducted sessions on career opportunities
Volunteer   Becoming I Foundation, NGO
Participated in outreach programs, visiting government schools to teach foundational science, math, and English
Prefectorial Body Member   V-Care Club
Participated in club activities such as growing plants, organizing newspaper recycling initiatives