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# Aadhithyan Velan M

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## EDUCATION

### **Birla Institute of Technology and Science, Hyderabad Campus**

*B.E. Computer Science*

August 2023 - May 2027

## PROJECTS

### **Reinforcement Learning Chess Bot (*Knightmare Protocol*)**

Independent Research Project

July 2025 – PRESENT

- Developed end-to-end RL pipelines, including NFQ, DQN, DDQN, and Dueling DDQN, implemented from first principles
- Trained a Supervised Learning (SL) agent on 8M+ positions from masters' games and deployed the inference engine live on Lichess
- Investigating the transition from supervised initialization to self-play reinforcement learning, focusing on training stability and non-convergence in dueling DDQN
- Authored a deep-dive blog series documenting the entire technical process
- Link to blog: <https://knightmareprotocol.hashnode.dev/>
- Link to bot: <https://lichess.org/@/KnightmareProtocol>

### **Bert-CRF Model for Attribute-Value Extraction From E-Commerce Product Titles**

Aug 2025 - Dec 2025

- Added a CRF layer to a pre-trained BERT model to extract attributes (brand, model, color) from e-commerce product titles
- Trained the hybrid model on a manually annotated (IOB labeling) dataset
- Created an interactive web application built with Streamlit for real-time inference and demonstration

## EXPERIENCE

### **Undergraduate Student Researcher | BITS Pilani, Hyderabad Campus**

Research Assistant to Prof. Aneesh Chivukula

Aug 2025 - Dec 2025

Conducted research on Adversarial Deep Learning.

Used Variational Autoencoders (VAEs) to simulate adaptive attacks on CNN-based vision systems.