

# Yash Bhartia

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## Education

### Birla Institute of Technology and Science, Pilani

Goa, India

B.E. IN COMPUTER SCIENCE

August 2019 - May 2023

- **Relevant Coursework:** Linguistics, Object Oriented Programming, Data Structure and Algorithms, Database Management Systems, Probability and Statistics, Computer Programming

## Projects

### Procedural Dungeon Rooms

Unity based Algorithm

[Github](#)

April 2020

- A reusable asset to generate dungeon rooms procedurally in Unity
- Algorithms used: Delaunay triangulation, Minimal tree spanning and optimizations like grid correction
- App can generate rooms and interconnected corridors entirely from scratch, taking up to a few minutes for each generation

### Particle Vfx

Game effect

[github](#)

August 2020

- Reusable and editable effects: fireflies, lightning, fire
- Made only using unity's particle system and 2d lighting

### Flipkart Categorizer

Natural Language Processing

[Github](#)

April 2021

- A transformer (XLNet) based multi-class classifier to predict Category of item given item description. Cleaned data, visualized using Seaborn plots, and fixed class imbalance using class weights.
- model gave F1 score of .74 on validation set

### Rainbow RL Implementation

Reinforcement learning

[Github](#)

December 2020

- Built a Deep Q network based agent to play Atari games in OpenAi gym environment using PyTorch
- model trained for 400 episodes wins all 21 points for pong in test

### Reddit Flair Detection

Natural Language Processing

[Github](#)

July 2020

- Implemented a LSTM+Attention model using PyTorch and torchtext to classifies Reddit posts into its appropriate flairs
- model achieves an F1 score of 0.55 on validation set

### Pokebattle

Reinforcement Learning

[Github](#)

August 2020

- Built an agent based on DQN network to play and win games against a fixed algorithm.
- Finished the Pokemon Battle environment, implemented a more flexible algorithm, added data for various moves and Pokemons scrapped and cleaned from multiple sources.

### Quantum Chess

Quantum Computation

[Github](#)

February 2021

- Open source Quantum Chess implementation, made with Qiskit, hichesslib, and Qt
- Implemented functions like entangle, split and measure for the quantum chess pieces

## Publication

### LRG at SemEval-2021 Task 4: Improving Reading Comprehension with Abstract Words using Augmentation, Linguistic Features and Voting

SemEval

MENTOR: Tirtharaj Dash

2021

Abheesht Sharma\*, Harshit Pandey\*, Gunjan Chhablani\*, Yash Bhartia, Tirtharaj Dash

[Arxiv](#), [Code](#)

# NLRG at SemEval-2021 Task 5: Toxic Spans Detection Leveraging BERT-based Token Classification and Span Prediction Techniques

SemEval

MENTOR: [Shan Suthaharan](#)

2021

Gunjan Chhablani\*, Abheesht Sharma\*, Harshit Pandey\*, **Yash Bhartia**, Shan Suthaharan

[Arxiv](#), [Code](#)

## Teaching Experience

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### Introduction to Machine Learning and Deep learning

INSTRUCTOR

January 2021 - Present

- Responsible for delivering lectures on PyTorch, Computational Graphs, Neural Nets and Natural Language processing to 70 students and mentoring their final project for the course

### Introduction to Game Development and XR

MENTOR

January 2021 - Present

- Responsible for mentoring lectures on game development in Unity and modeling Blender for over 10 students and mentoring their final project for the course

## Skills

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**Frameworks** Numpy, Scikit, PyTorch, Linux, Unity, Blender

**Tools** Vim, GIT, MySQL

**Languages** Python, JAVA, C#/C++, SQL, LaTeX

## Committees

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**DevSoc** Game Development Vertical Head of Developer's Society (DevSoc - BITS Goa)

**SAiDL** Core Member at the Society for AI & Deep Learning (SAiDL - BITS Goa)

**LRG** Core Member at the Student Language Research Group (LRG - BITS Goa)

**Abhigyaan** Batch head for Abhigyaan organisation, educating the unprivileged