



6th Pick

Team Recommendation

Project Overview

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Problem Statement

- Competitive Pokémon teams consist of 6 Pokémon.



- Teams are usually based around a small ‘core’ of 3-5 Pokémon that fit a theme.
- The final pick needs to fill in the holes in the team’s elemental resistances, referred to as: “type coverage”
- The problem is thus: “Given a partial team composition, determine the optimal next-pick Pokémon for the party.”

Data Sources

Pokemon data was all either scraped from Smogon, or provided by Porydex

Tournament dataset was the 2025 Toronto Regional VGC tournament, obtained from:
<https://labmaus.net/tournaments/6587>

Type and icon images were scraped from Porydex, who in turn ripped them directly from the videogame.

Features

- Each Pokémon mapped to 18-dimensional defensive vector
- Team converted to a set of 5×18 tensors
- Team-level weakness/resistance summary created



Model Architecture

- Deep Sets architecture handles unordered sets
- Pokémon vectors independently encoded, then aggregated, yielding team embedding
- Final classifier predicts optimal 6th Pokémon

Training Results

- Steady improvement across each epoch
- Even with samples of very specific niche anti-meta teams (Wolfe Glicke's winning "Perish Trap" team):
- >30% top-1 accuracy on validation
- >65% top-5 accuracy on validation



Streamlit Application

- User selects 5 Pokémon from searchable dropdowns
- App computes team weaknesses/resistances
- Shows a defensive breakdown of the team
- Displays top 10 candidates, with the probabilities that it could fill that slot in a competitive team

Future Improvements

- Add offensive vectors
- Incorporate stats and abilities
- Deploy as public web service

Image References

International logo of Pokémon franchise.

“New York Mankees” logo from the Wolfe Draft League:

<https://www.youtube.com/watch?v=mW6TZGUhppw>

Gigantamax Pikachu from:

<https://swordshield.pokemon.com/fr-be/pokemon-galar-region/gigantamax-pikachu/>

Shiny Whimsicott model from Pokemon Sword and Shield