Landmark Recognition Challenge Intro

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https://www.kaggle.com/c/landmark-recognition-2021

Overview - 4th Landmark Recognition Challenge

- Focus on fairness

- Run time: 7 weeks (ended Oct. 1st)

- Prizes: Kaggle merchandise

- Participating teams: 383
  - 18 of the top-20 teams also participated in the Retrieval challenge

Task

Problem statement: *given an image, recognize the landmark (if any)*

Example test images

Metric: microAP / Global Average Precision (GAP) with 1 prediction per image

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Challenge Format: Coding Competition

- Participants implement recognition algorithm in Kaggle Notebook
  - Code is executed on Kaggle's servers
  - Can import any pre-trained models or libraries
  - Can use training data of choice (GLD v2 clean is provided)
  - Ample resources for diverse approaches
    - Retrieval / Classification
    - Local / global features

[Two-stage Discriminative Re-ranking for Large-scale Landmark Retrieval, Yokoo et al, CVPRW'20]

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Challenge Format: Submission Process

1. Create Notebook that:

   a. Loads model(s) / images

   b. Makes predictions

2. Notebook and model(s) are copied to Kaggle VM

3. Code is re-run against evaluation images

4. Our code computes GAP

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2021 Recognition Challenge Data

Development Data

Training Set

GLDv2-clean
(1.5M images of 81k landmarks)
Available on Kaggle, no need to download

Test Set

10k query images from GLDv2-test

Evaluation Data

Training Set

100k images from GLDv2-clean

Test Set

~20K new images mined from Wikimedia
- 9,735 for public leaderboard
- 10,502 for private

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[Google Landmarks Dataset v2, Weyand et al, CVPR'20]

[Two-stage Discriminative Re-ranking for Large-scale Landmark Retrieval, Yokoo et al, CVPRW'20]

Landmark Recognition Track
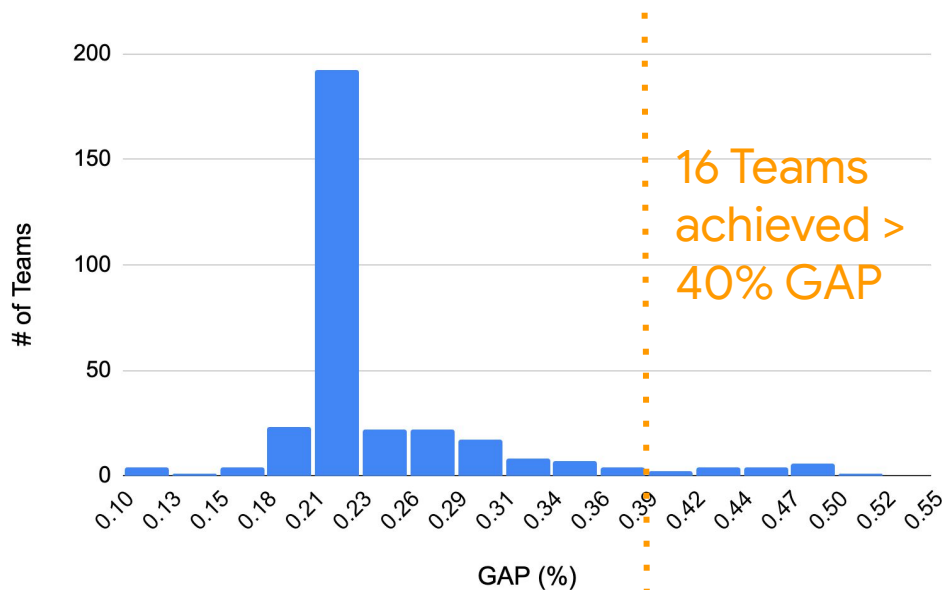
Final results: private dataset, total of 383 teams

Rank	Team	GAP (%)
1	Dieter	51.27
2	bestfitting	49.08
3	ByteDance Vision Tech.	48.96
4	All Data Are Ext	48.31
5	NotEnoughFitting	48.28

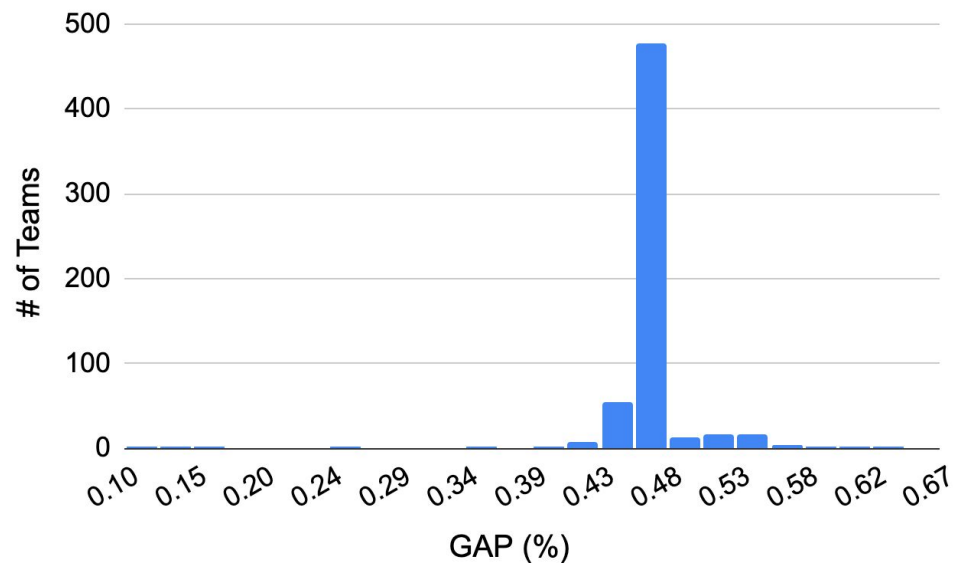| Rank	Team	GAP (%)
6	goodenoughfitting	47.94
7	gpushare.com	47.43
8	Rist Kaggle team	46.34
9	vcjy	45.72
10	Guanshuo Xu	44.98

Full results can be found on the [Kaggle Leaderboard of the 2021 Landmark Recognition Challenge](#)

Landmark Recognition Track

GAP (%) histogram for participants

16 Teams achieved > 40% GAP

2021

2020

Landmark Recognition Track

Results: other metrics

Rank	Team	GAP (%)	GAP* (%)	Acc (%)
1	Dieter	**51.27**	**53.16**	**60.12**
2	bestfitting	49.08	51.22	57.52
3	ByteDance Vision Tech.	48.96	51.34	57.06
4	All Data Are Ext	48.31	49.57	58.26
5	NotEnoughFitting	48.28	49.45	56.39

Rank	Team	GAP (%)	GAP * (%)	Acc (%)
6	goodenoughfitting	47.94	49.21	55.13
7	gpushare.com	47.43	48.78	56.26
8	Rist Kaggle team	46.34	48.60	57.06
9	vcjy	45.72	47.51	55.39
10	Guanshuo Xu	44.98	45.94	53.33

GAP*: GAP considering only landmark queries
Acc: top-1 accuracy for landmark queries

Summary - Landmark Recognition Challenge 2021

- 4th landmark recognition challenge

- Strong participation despite lack of prize money

- Focus on fairness