NUS-Tsinghua-Southampton Joint Research Center
DietLens | DietLens

Developed deep-based dish/ingredient recognition.

Singapore/South East Asia food:
- Highest coverage of food types
- Highest accuracy of food recognition

Accuracy:
- Top 1: 77%
- Top 5: 92%
Deep-based Dish/Ingredient Recognition
1000 popular South East Asia foods:
- Chinese cuisine - 524
- Western cuisine - 224
- Fruits & snacks - 126
- Malay/Peranakan cuisine - 112
- Indian cuisine - 71
- Japanese cuisine - 41
- Indonesian cuisine - 26
- Korean cuisine - 9
- Vegetarian cuisine - 9
- Thai cuisine - 6
- Vietnamese cuisine - 1
Topics:
- Economic Bee Hoon
- Mixed Vegetable Rice
- Restaurants
- Demos
Economic Bee Hoon
DietLens | Economic Bee Hoon

Challenges:
- Dish is not fixed
- Large variety of food
- Cooking method is not fixed

Process:
- Identified the food in the economic bee hoon
- Gathered images for the food
- Developed a model
- Integrated into the DietLens app
**DietLens | Economic Bee Hoon**

**Stats:**
- 70 foods
- 2,850 images
- 90% accuracy

**Value:**
- Identifies the different food items in the dish
- Accurately calculates the nutritional values based on these food items
Mixed Vegetable Rice
**Challenges:**
- Larger variety of food in comparison to the economic bee hoon
- Food items have small variations

**Approach:**
- Identify & prioritise mixed vegetable rice food
- Gather images for the food
- Develop a model
- Integrate into the DietLens app
Stats:
- Surveyed 18 stores
- Identified 182 unique dishes
Next steps:
- Gather images for the identified foods based on their priority
- Annotate images with the food
- Develop a model using these images
Restaurants
Approach:
- Identified restaurants in Singapore
- Established their menus, containing all food items
- Gathered images for all the food items

Stats:
- Restaurants: 7,452
- Foods: 123,251
- Images: 314,478
Demo dataset:
- Restaurants: 864
- Food: 1,590
- Images: 48,540

Value:
- More accurate information by identifying the restaurant
- Can show the restaurant’s menu and highlight healthier options
Next steps:
- Annotate the full dataset, including healthier menu options
- Develop a model with the full dataset
- Integrate into the DietLens app
Demos
**Request**

POST https://scale.dietlens.com/foodinfo/

image=

**Response**

```
{
  "status": "HTTP_200_OK",
  "message": "Food recognition success",
  "data": {
    "image_predict_time": 0.9041101932525635,
    "all_processing_time": 1.1562061309814453,
    "best_match": [{
      "id": 156,
      "display_name": "Banana",
      "example_img": "https://img.dietlens.com/example/156_Banana.png",
      "nutrition": {
        "energy": "88.98"
      },
      "food_popularity": 0.95,
      "score": 0.998492
    }],
    "image_load_time": 0.009537696838378906,
    "path": "http://scale.dietlens.com/media/gallery/1552457918.jpg",
    "post_processing_time": 0.24174785614013672
  }
}
```
Establish food

Google
Baidu

Removal of faces
Dimension sizes
Corrupt image
Duplicate images

Image quality
Label image

New image dataset