Motivation

- Exercise, sleep and nutrition monitoring is essential for optimizing athletic performance
- Need to reduce friction (manual, inaccurate) to make nutrition monitoring fast and easy
- Visual food recognition greatly simplifies logging of meals using context and content
- Provides accurate tracking of diet and planning nutritional intake for achieving goals

System Architecture

Snap Meal Photos

- In Context: pics, restaurant, menu
- In-the-wild: just pics

Nutrition Logging, Dietary Assistant

- Recognized food category
- Client information

Server side

REST API

- Food Visual Recognition and Analysis

Food Recognition “in the wild”

- Web and Social Media Crawling
- Unnecessary images removal
  - Duplicates
  - Empty images
  - Small images
- Filter and rank by classifier (Food vs. not Food)
- Crowdsourced human verifications

Visual Interface

Created Largest Visual Food Recognition Dataset

Model: GoogleNet pretrained on Imagenet and finetuned on given dataset

Dataset | Accuracy (Top 1)
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Food 100 (ours) | 69.64
Food 500 (ours) | 40.37

Most Confused Categories

- Creole rice
- Jambalaya
- Roast beef
- Pastrami
- Peanut butter
- Fudge