# pic2kcal: End-to-End Calorie Estimation From Pictures of Food

Robin Ruede, Lukas Frank, Verena Heußer
Karlsruhe Institute of Technology

## Abstract

*We estimate kcal directly from a picture. It good.*

## 1. Motivation and Related Work

There's some other papers like [1]–[3]. Ours is more end to end and also BETTER

## 2. Dataset Extraction and Preprocessing

## 3. Experiments

| Method | kcal relative error |
|---|---|
| baseline | 0.464 |
| ours (kcal only) | 0.361 |
| ours (w/ macros) | 0.352 |
| ours (w/ macros+ings) | 0.328 |

Table 1. Results per 100g. Note that multitask learning improves performance.

## 4. Results

Our results can be seen in tbl. 1. Example outputs can be seen in fig. 1.

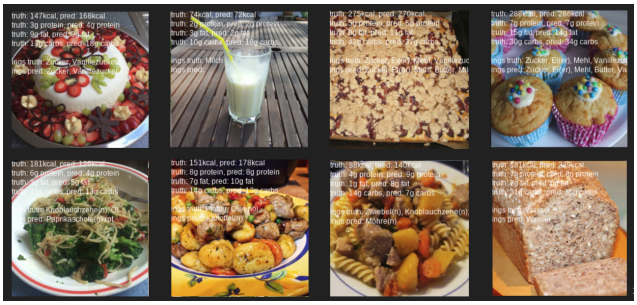

Figure 1. Some example results, showing predicted calories, fat, protein, carbohydrates and ingredients.

## References


[1] M. Chokr and S. Elbassuoni, "Calories Prediction from Food Images," in *Proceedings of the Thirty-First AAAI Conference on Artificial Intelligence*, 2017, pp. 4664–4669 [Online]. Available: `http://dl.acm.org/citation.cfm?id=3297863.3297871`

[2] T. Ege and K. Yanai, "Image-Based Food Calorie Estimation Using Knowledge on Food Categories, Ingredients and Cooking Directions," in *Proceedings of the on Thematic Workshops of ACM Multimedia 2017*, 2017, pp. 367–375 [Online]. Available: `http://doi.acm.org/10.1145/3126686.3126742`

[3] A. Romero, X. Giro-i-Nieto, M. Drozdzal, and A. Salvador, "Inverse Cooking: Recipe Generation from Food Images," Dec. 2018 [Online]. Available: `https://arxiv.org/abs/1812.06164v2`