









## REFERENCES

- [1] Marios M Anthimopoulos, Lauro Gianola, Luca Scarnato, Peter Diem, and Stavroula G Mougiakakou. 2014. A food recognition system for diabetic patients based on an optimized bag-of-features model. *IEEE J. of Biomedical and Health Informatics* 18, 4 (2014), 1261–1271.
- [2] Maria Teresa Artese, Gianluigi Ciocca, and Isabella Gagliardi. 2021. Analysis of Traditional Italian Food Recipes: Experiments and Results. In *Pattern Recognition, ICPR International Workshops and Challenges*. Springer International Publishing, Cham, 677–690.
- [3] Sinem Aslan, Gianluigi Ciocca, Davide Mazzini, and Raimondo Schettini. 2020. Benchmarking Algorithms for Food Localization and Semantic Segmentation. *International Journal of Machine Learning and Cybernetics* 11 (2020), 2827–2847.
- [4] Sinem Aslan, Gianluigi Ciocca, and Raimondo Schettini. 2017. On Comparing Color Spaces for Food Segmentation. In *New Trends in Image Analysis and Processing – ICIAP 2017: ICIAP International Workshops, WBICV, SSPandBE, 3AS, RGBD, NIVAR, IWBAAS, and MADiMa 2017, Catania, Italy, September 11–15, 2017, Revised Selected Papers*, Sebastiano Battiato, Giovanni Maria Farinella, Marco Leo, and Giovanni Gallo (Eds.). Springer International Publishing, Cham, 435–443.
- [5] Sinem Aslan, Gianluigi Ciocca, and Raimondo Schettini. 2018. Semantic food segmentation by deep convolutional neural networks. In *International Conference on Consumer Electronics - Berlin (ICCE-Berlin)*. IEEE, 1–6.
- [6] Oscar Beijbom, Neel Joshi, Dan Morris, Scott Saponas, and Siddharth Khullar. 2015. Menu-Match: Restaurant-Specific Food Logging from Images. In *Applications of Computer Vision (WACV), 2015 IEEE Winter Conference on*. IEEE, 844–851.
- [7] M. Bosch, Fengqing Zhu, N. Khanna, C.J. Boushey, and E.J. Delp. 2011. Combining global and local features for food identification in dietary assessment. In *Image Processing (ICIP), 2011 18th IEEE International Conference on*. 1789–1792.
- [8] Marco Buzzelli, Federico Belotti, and Raimondo Schettini. 2018. Recognition of Edible Vegetables and Fruits for Smart Home Appliances. In *2018 IEEE 8th International Conference on Consumer Electronics-Berlin (ICCE-Berlin)*. IEEE, 1–4.
- [9] Liang-Chieh Chen, George Papandreou, Iasonas Kokkinos, Kevin Murphy, and Alan L Yuille. 2017. Deeplab: Semantic image segmentation with deep convolutional nets, atrous convolution, and fully connected crfs. *IEEE transactions on pattern analysis and machine intelligence* 40, 4 (2017), 834–848.
- [10] Gianluigi Ciocca, Davide Mazzini, and Raimondo Schettini. 2019. Evaluating CNN-Based Semantic Food Segmentation Across Illuminants. In *Computational Color Imaging (Lecture Notes in Computer Science, Vol. 11418)*, Shoji Tominaga, Raimondo Schettini, Alain Trémeau, and Takahiko Horiuchi (Eds.). Springer International Publishing, 247–259.
- [11] Gianluigi Ciocca, Giovanni Micali, and Paolo Napoletano. 2020. State Recognition of Food Images using Deep Features. *IEEE Access* 8 (2020), 32003–32017.
- [12] Gianluigi Ciocca, Paolo Napoletano, and Simone Giuseppe Locatelli. 2021. Iconic-Based Retrieval of Grocery Images via Siamese Neural Network. In *Pattern Recognition, ICPR International Workshops and Challenges*. Springer International Publishing, Cham, 269–281.
- [13] Gianluigi Ciocca, Paolo Napoletano, and Simone Giuseppe Locatelli. 2021. Multi-task Learning for Supervised and Unsupervised Classification of Grocery Images. In *Pattern Recognition, ICPR International Workshops and Challenges*. Springer International Publishing, Cham, 325–338.
- [14] Gianluigi Ciocca, Paolo Napoletano, and Raimondo Schettini. 2015. Food Recognition and Leftover Estimation for Daily Diet Monitoring. In *New Trends in Image Analysis and Processing – ICIAP 2015 Workshops (Lecture Notes in Computer Science, Vol. 9281)*, Vittorio Murino, Enrico Puppo, Diego Sona, Marco Cristani, and Carlo Sansone (Eds.). Springer International Publishing, 334–341.
- [15] Gianluigi Ciocca, Paolo Napoletano, and Raimondo Schettini. 2017. Food recognition: a new dataset, experiments and results. *IEEE Journal of Biomedical and Health Informatics* 21, 3 (2017), 588–598.
- [16] Gianluigi Ciocca, Paolo Napoletano, and Raimondo Schettini. 2017. Learning CNN-based Features for Retrieval of Food Images. In *New Trends in Image Analysis and Processing – ICIAP 2017: ICIAP International Workshops, WBICV, SSPandBE, 3AS, RGBD, NIVAR, IWBAAS, and MADiMa 2017, Catania, Italy, September 11–15, 2017, Revised Selected Papers*, Sebastiano Battiato, Giovanni Maria Farinella, Marco Leo, and Giovanni Gallo (Eds.). Springer International Publishing, Cham, 426–434.
- [17] Gianluigi Ciocca, Paolo Napoletano, and Raimondo Schettini. 2018. CNN-based Features for Retrieval and Classification of Food Images. *Computer Vision and Image Understanding* 176–177 (2018), 70–77.
- [18] Gianluigi Ciocca, Paolo Napoletano, and Raimondo Schettini. 2018. IVLFood-WS: Recognizing food in the wild using Deep Learning. In *International Conference on Consumer Electronics - Berlin (ICCE-Berlin)*. IEEE, 1–6.
- [19] Y. Deng and B.S. Manjunath. 2001. Unsupervised segmentation of color-texture regions in images and video. *IEEE Transactions on Pattern Analysis and Machine Intelligence* 23, 8 (2001), 800–810.
- [20] Annalisa Franco, Davide Maltoni, and Serena Papi. 2017. Grocery product detection and recognition. *Expert Systems with Applications* 81 (2017), 163–176.
- [21] Kaiming He, Xiangyu Zhang, Shaoqing Ren, and Jian Sun. 2016. Deep residual learning for image recognition. In *Proceedings of the IEEE conference on computer vision and pattern recognition*. 770–778.
- [22] Saihui Hou, Yushan Feng, and Zilei Wang. 2017. Vegfru: A domain-specific dataset for fine-grained visual categorization. In *Proceedings of the IEEE International Conference on Computer Vision*. 541–549.
- [23] Takumi Ege and Keiji Yanai. 2018. Multi-task learning of dish detection and calorie estimation. In *Proceedings of the Joint Workshop on Multimedia for Cooking and Eating Activities and Multimedia Assisted Dietary Management*. ACM, 53–58.
- [24] Shuqiang Jiang, Weiqing Min, Linhu Liu, and Zhengdong Luo. 2019. Multi-Scale Multi-View Deep Feature Aggregation for Food Recognition. *IEEE Transactions on Image Processing* 29 (2019), 265–276.
- [25] Philipp Jund, Nichola Abdo, Andreas Eitel, and Wolfram Burgard. 2016. The freiburg groceries dataset. *arXiv preprint arXiv:1611.05799* (2016).
- [26] Yoshiyuki Kawano and Keiji Yanai. 2014. FoodCam: A real-time food recognition system on a smartphone. *Multimedia Tools and Applications* (2014), 1–25.
- [27] Chairi Kiourt, George Pavlidis, and Stella Markantonatou. 2020. Deep learning approaches in food recognition. In *Machine Learning Paradigms*. Springer, 83–108.
- [28] Keigo Kitamura, Toshihiko Yamasaki, and Kiyoharu Aizawa. 2009. FoodLog: Capture, Analysis and Retrieval of Personal Food Images via Web. In *Proceedings of the ACM Multimedia 2009 Workshop on Multimedia for Cooking and Eating Activities*. 23–30.
- [29] Marcus Klasson, Cheng Zhang, and Hedvig Kjellström. 2019. A hierarchical grocery store image dataset with visual and semantic labels. In *2019 IEEE Winter Conference on Applications of Computer Vision (WACV)*. IEEE, 491–500.
- [30] Fanyu Kong and Jindong Tan. 2012. DietCam: Automatic dietary assessment with mobile camera phones. *Pervasive and Mobile Computing* 8, 1 (2012), 147–163.
- [31] Ya Lu, Thomaï Stathopoulou, Maria F Vasiloglou, Stergios Christodoulidis, Zeno Stanga, and Stavroula Mougiakakou. 2020. An artificial intelligence-based system to assess nutrient intake for hospitalised patients. *IEEE transactions on multimedia* 23 (2020), 1136–1147.
- [32] Davide Mazzini and Schettini Raimondo. 2019. Spatial Sampling Network for Fast Scene Understanding. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition Workshops*. 97–107.
- [33] Simon Mezgec and Barbara Koroušić Seljak. 2017. Nutrinet: A deep learning food and drink image recognition system for dietary assessment. *Nutrients* 9, 7 (2017), 657.
- [34] Weiqing Min, Shuqiang Jiang, Linhu Liu, Yong Rui, and Ramesh Jain. 2019. A survey on food computing. *ACM Computing Surveys (CSUR)* 52, 5 (2019), 1–36.
- [35] A. Myers, N. Johnston, V. Rathod, A. Korattikara, A. Gorban, N. Silberman, S. Guadarrama, G. Papandreou, J. Huang, and K. Murphy. 2015. Im2Calories: Towards an Automated Mobile Vision Food Diary. In *IEEE Int. Conf. on Computer Vision (ICCV)*. 1233–1241.
- [36] Robin Ruede, Verena Heusser, Lukas Frank, Alina Roitberg, Monica Haurilet, and Rainer Stiefelhagen. 2021. Multi-Task Learning for Calorie Prediction on a Novel Large-Scale Recipe Dataset Enriched with Nutritional Information. In *2020 25th International Conference on Pattern Recognition (ICPR)*. IEEE, 4001–4008.
- [37] Amaia Salvador, Nicholas Hynes, Yusuf Aydar, Javier Marin, Ferda Ofli, Ingmar Weber, and Antonio Torralba. 2017. Learning Cross-modal Embeddings for Cooking Recipes and Food Images. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*. 3068–3076.
- [38] M. A. Subhi, S. H. Ali, and M. A. Mohammed. 2019. Vision-Based Approaches for Automatic Food Recognition and Dietary Assessment: A Survey. *IEEE Access* 7 (2019), 35370–35381.
- [39] Ryoosuke Tanno, Koichi Okamoto, and Keiji Yanai. 2016. Deepfoodcam: A dcnn-based real-time mobile food recognition system. In *Proceedings of the 2nd International Workshop on Multimedia Assisted Dietary Management*. ACM, 89–89.
- [40] Quin Thames, Arjun Karpur, Wade Norris, Fangting Xia, Liviu Panait, Tobias Weyand, and Jack Sim. 2021. Nutrition5k: Towards Automatic Nutritional Understanding of Generic Food. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition*. 8903–8911.
- [41] Wen Wu and Jie Yang. 2009. Fast food recognition from videos of eating for calorie estimation. In *Multimedia and Expo, 2009. ICME 2009. IEEE International Conference on*. IEEE, 1210–1213.
- [42] Shulin Yang, Mei Chen, Dean Pomerleau, and Rahul Sukthankar. 2010. Food recognition using statistics of pairwise local features. In *Computer Vision and Pattern Recognition (CVPR), 2010 IEEE Conference on*. IEEE, 2249–2256.
- [43] Ning Yao, Robert J Scabassi, Qiang Liu, Jie Yang, John D Fernstrom, Madelyn H Fernstrom, and Mingui Sun. 2007. A video processing approach to the study of obesity. In *Multimedia and Expo, 2007 IEEE International Conference on*. IEEE, 1727–1730.