

## Computer Cooking Contest

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## Preface

The Computer Cooking Contest aims to attract people working with AI technologies such as case-based reasoning, semantic technologies, search, and information extraction. Also, cooking is fun, particularly when using a computer to design the menu. Since everybody knows something about cooking, people will be curious about how well a computer can cook. Finally, we have all noticed the public's increasing interest in cooking, motivated by the growing awareness that good food is mandatory for good health. Hence, the Computer Cooking Contest provides an opportunity for researchers to explain the benefits of their technologies to everyone.

The Computer Cooking Contest (CCC) is an open competition. All individuals (e.g., students, professionals), research groups, and others are invited to submit software that creates recipes. The primary knowledge source is a database of basic recipes from which appropriate recipes can be selected, modified, or even combined. The queries to the system will include the desired and undesired ingredients. For most of the queries there is no single correct or best answer. That is, many different solutions are possible, depending on the creativity of the software. There is no restriction on the technology that may be used; all are welcome.

This year competition offers four challenges:

- the salad challenge on suggesting salad recipes with a limited set of ingredients and managing the ingredient quantities
- the easy steps challenge on adapting recipes with no restriction on ingredients, but managing the steps
- the mixology challenge on adapting the ingredients of a cocktail recipes with a limited set of ingredients
- and the open challenge on novel ideas and positions on computer cooking

The competition received seven submissions from which six papers were selected as finalists. We are happy to present the contributions of the teams that have been accepted to the Computer Cooking Contest 2017. In "Cooking made easy: On a novel approach to complexity-aware recipe generation" Gilbert Miller and Ralph Bergmann address the easy steps challenge. The approach defines a new complexity-based criterion to be used to guide CookingCAKE's retrieval and adaptation processes that can be tuned as desired against level of query match.

The Taaable team composed of Emmanuelle Gaillard, Jean Lieber and Emmanuel Nauer address the mixology, salad and open challenges in their paper "Adaptation of Taaable to the CCC'2017 Mixology and Salad Challenges, adaptation of the cocktail names". In this adaptation the Taaable as well as the integrated Tuurbine CBR system uses RDFS for storing domain specific knowledge, which allows comprehensive reasoning strategies. They present a set of approaches to address the different challenges. The first is an approach to adaptation that is used to address constraints arising from a limited set of available

ingredients, as well as ingredient quantities, which is applied for the salad and mixology challenges. The second is an approach to name adaptation for cocktail recipes that is applied to the open challenge.

Johnathan Pagnutti and Jim Whitehead contribution, *Cooking On The Margins: Probabilistic Soft Logics for Recommending and Adapting Recipes*, describes an approach to recipe recommendation and adaptation based on Probabilistic Soft Logics (PSL) that targets the mixology and open challenges for the Computer Cooking Contest.

Kari Skjold, Marthe Oynes, Kerstin Bach and Agnar Aamodt introduce an interactive system in their paper titled "IntelliMeal - Enhancing Creativity by Reusing Domain Knowledge in the Adaptation Process" that targets the open challenge. Their system allows a user to declare desired and undesired ingredients and retrieve relevant recipes from the database. However, it does not stop there. It also generates recipes modified according to the user's declaration. These adapted versions are mixed with the original recipes, filtered, and then presented to the user for manual judgment. It will then be added to the original recipe database if the user judges as appropriate.

In "A Proposed General Formula to Create and Analyze Baking Recipes" Michael Ohene presents a mathematical formula for baking recipes that is, as he argues, capable of identifying unacceptable recipes. The results also produced logical mathematical groupings of baked good recipes. Through the Random Recipe Generator, the author states that it is possible to generate different recipes from characteristic values via ingredient constants.

Christian Zeyen, Gilbert Mller and Ralph Bergmann propose a recipe retrieval method based on Q&A conversations with a user in their paper titled "Conversational Retrieval of Cooking Recipes". The system issues questions to a user based on the workflow derived from the analysis of a recipe. Abstraction of ingredients and operations is performed so that the system can start from asking relatively abstract questions, and then formulating the user's preference (desired and undesired) by traversing up and down the abstractness structure.

The 10th Computer Cooking Contest will be held in conjunction with the 2017 International Conference on Case-Based Reasoning in Trondheim, Norway. A web site with detailed information on the competition and challenges is online at: <http://computercookingcontest.com>.

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