Culinary Art Designer

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ABSTRACT

Cooking, as an every day task, is one of time consuming but essential task in home. However, designing of cooking is not very easy. Cooks design their cooking based on their empirical knowledge and such knowledge is difficult to learn without long time experience and/or hard practice under senior cooks. That is why we propose “Culinary Art Designer"—a system that supports one to dynamically design their own recipe visually.

1. THE ART OF COOKING

In the cooking world, looks is as important as taste. From the physical appearance of a dish, one judges whether it is delicious or not. Owada [1] studied techniques for rendering cross-sections of foods internal when cutted in various places. We propose a system that simulates the physical and chemical changes that occurs during cooking process visually with high realism.

2. INNOVATION

In the past, recipes are based on one static recipe, but with our system, one could dynamically create their own recipe by modeling the relations of the cooking operations and the cooking results. These are three advantages that our system provides. First the user come to know the end result of the cooking process can be simulated in a short time than that of the real world.Second,by confirming the end result of a simulation process, the user could get an image of the cooking process,condition or parameter of food ingredient and dynamically changes of it. Third,Reproducing high realism of the end results of the appearance for each food ingredient undergoing the simulated cooking process

Culinary Art Designer system consists of 3 elements: “Texture and Shape Manipulation”,“Heat transmission model”, “Dynamic model”

In “Texture and Shape Manipulation”,food ingredients shape is reconstructed as a 3D mesh and texture is applied on it to express realness. The heat spread in the food ingredients is simulated as heat transfer between neighboring nodes of the mesh model in “Heat transmission model”. Texture is then changed based on the heating,moisture condition of the food ingredients to simulate chemical reaction caused by heating process. “Dynamic model” is used to simulate movements of the food ingredients when the frying pan is moved as to cause the ingredients to turn or roll over that litterally reflects the ingredients heating condition in "Heat transmission model".These series of operation can be altered by the user and physical changes of the ingredients during cooking is simulated and feedbacked to user on the screen.

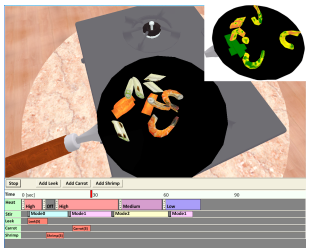

Figure 1: The system image of the "CulinaryArtDesigner".

3. VISION

We believe that cooking originality at an individual level increases significantly with this system and cooking can be a good opportunity to open the century of individual creativity.

4. REFERENCES

[1] N. F. O. M. Owada, S. and T. Igarashi. Volumetric illustration: Designing 3d models with internal textures. Proceedings of ACM SIGGRAPH(SIGGRAPH2004), pages 322–328, 2004.