

15th of October 2021

PhD Student position
Institut Paul Bocuse Research Center (Lyon, France)
Beginning March 2022

AgeEat Project: Elderly people's adapted diet combining gastronomy and food science expertise into a multisensory and nutritional design process

GENERAL CONTEXT:

Currently, the aging of the population represents a major public health challenge characterized by an increase in the vulnerability of seniors to a variety of physiological and metabolic disorders (type 2 diabetes, hypertension, sarcopenia...) in relation to poor nutrition. Different factors can be linked to this malnutrition: socio-economic context, sensory deficit, loss of appetite, oral and dental problems or even a decrease in mobility. If preventive nutrition throughout life is essential to limit the occurrence of diseases associated with aging, it is also essential to offer a specific and adapted diet to seniors (sensory and nutritional enrichment, modified textures, adapted portions, etc.) to prevent and fight these disorders.

OBJECTIVES AND APPROACHES:

In this context, the project specifically aims to develop a new approach to formulate and develop food products taking into account the changes in food perception due to aging. Young non-dependent seniors will be at the centre of the culinary innovation process through the development of food products adapted to their needs and expectations, taking into account their diversity related to sensory perceptions, needs in organoleptic and nutritional enrichment, textures, colour and odour attractivity, difficulties in eating, the social cultural habits... The work will be focused on four clear steps: defining a multi criteria food design space, design the minimum number of food applications within selected food categories (DOE), evaluate performance to design the best multi criteria model, and validate the learnings by testing newly designed and optimized food applications. To ensure success, this work will engage a multi-actor expertise with food and sensory researchers, culinary chefs, industry partners and senior consumers in close interaction with sociologists, dieticians, and geriatrists.

KEY WORDS:

Nutrition of seniors, culinary innovation, food product design, participatory research.

PhD SUPERVISION

The thesis co-supervisors will be:

- Dr. Anne Saint-Eve, Assistant Professor, Paris-Saclay Food and Bioproduct Engineering research unit (SayFood, INRAE / AgroParisTech), Palaiseau, France.
- Dr. Agnès Giboreau, Research Center Dir. Institut Paul Bocuse / University Lyon 1 (P2S), Lyon, France.
- Dr. Audrey Cosson, Researcher, Institut Paul Bocuse Research Center (IPBR), Lyon, France.

MAIN MISSIONS

The PhD candidate is expected to:

- Lead the research project and ensure the coordination between the different involved partners.
- Review the existing literature on seniors' sensitivity and perception in relation to the physicochemical properties of food products.
- Formulate original research hypotheses and co-develop the multi-constraint design.
- Conduct and coordinate quantitative survey, product development, sensory and consumer evaluations.

- Conduct statistical analyses.
- Write scientific papers targeting top ranked international journals.
- Attend congresses, workshops, meetings, media events in order to disseminate research results.

REQUIRED QUALIFICATIONS:

We are looking for a candidate with an engineering degree or a research master's degree with a specialty or first experience in food science, sensory analysis, nutrition and/or geriatrics. An interest in human experimentation and an aptitude for statistical analysis and multidisciplinary subjects are highly desirable. We also expect dynamism, excellent communication skills, teamwork and organizational skills for this profile. Fluency in English is essential and knowledge of French is an asset.

CONDITIONS

- March 2022 - February 2025: 36-month PhD position at Institut Paul Bocuse Research Center/UMR SayFood (INRAE, AgroParisTech, Université Paris Saclay)
- Salary: PhD position 25k€ gross/year (based on French ANRT recommendations for CIFRE)

WORK ENVIRONMENT:

This work is part of a collaboration between the Institut Paul Bocuse Research Center and AgroParisTech. A CIFRE agreement will be established. A large part of the work will be carried out in the Lyon region within the Institut Paul Bocuse Research Center. Frequent trips to the Paris region are planned within the SayFood joint research unit, UMR 782 (INRAE / AgroParisTech), Bd Gaspard Monge, 91120 Palaiseau, France. International food companies are partners and will participate to the semestrial committee thesis. Some could host as well the candidate for some specific tasks.

APPLICATION PROCEDURE:

- Application deadline: 10/11/2021.
- On line interviews: November 2021.
- Applications should be sent to recrutement@institutpaulbocuse.com and audrey.cosson@institutpaulbocuse.com and include in a single PDF file:
 - 1) a letter of application (incl. expected date of availability)
 - 2) a CV including a list of research output clearly showing expertise in relevant areas
 - 3) two reference letters with names and contact information

For more information about this position, you could contact Audrey Cosson, Researcher (audrey.cosson@institutpaulbocuse.com).

HOST LABORATORIES

The UMR SayFood is a joint research unit between INRAE and AgroParisTech (Université Paris Saclay). Its mission is to propose new approaches in product and process engineering and to acquire original knowledge to contribute to the development of new sustainable food systems by working in interdisciplinarity on the design-consumption continuum. The UMR has chemistry, physical chemistry, microbiology and sensory analysis laboratories and a pilot plant for the study of food processes and bioprocesses. In particular, the PhD student will be part of the IHAC (Interaction Humaine Aliment pour la Conception) research team of the UMR SayFood which is interested in societal issues related to healthy and sustainable food systems. Their objective is to acquire knowledge and develop new sensory methodologies, in order to propose reasoned approaches to formulation leading to healthier, more sustainable products appreciated by consumers.

The Institut Paul Bocuse Research Center opened in 2008 in a dedicated building on the Ecully campus of the Institut Paul Bocuse to train students at the doctoral level and build a multidisciplinary research program. The Center stands out for its strong roots in societal and industrial contemporary challenges and plays a major role in identifying future practices in the field of hospitality, food service and culinary arts management. It originally focused on the relationship between humans (consumers and professionals) and food in eating-out contexts. Contributing to the uniqueness of the Centre is the Experimental Restaurant, which was designed as an innovative platform, a key original facility to collect data in real eating environments. It favours projects centered on human practices, decisions and perception, with a focus on eaters, cooks and waiters. This relies on two specific resources. First, the material resources: an experimental platform composed of a modular restaurant and a modular kitchen, equipped with a data acquisition system (video cameras, microphones, and computerized questionnaires) as well as a laboratory for biomedical sampling and food control analyses. Second, the institutional context: the living lab is part of a culinary arts & hospitality management college and graduate school, which facilitates the connection between the scientific, academic and professional worlds, and provides human resources (specialized students and teachers) for operations. In 2011, the Living Lab was labelled Enoll (European Network of Living Labs). <http://www.institutpaulbocuse.com/us/food-hospitality/> .

Lyon, 3rd city in France

With a rich history stretching back more than 2000 years, Lyon has taken shape over time, presenting visitors today with neighborhoods that have a unique atmosphere and reflect the city's evolution. Lyon is a city of trade, it was the first city to hold large traders' markets. It is also a city of communications, Lyon created a major access network that opened onto Europe and the rest of the world to encourage exchanges and influence between people, goods and ideas. Lyon and its region are recognized as a central place for gastronomy and wonderful sensory eating experience, with several great chefs, famous restaurants and international related events such as the Bocuse d'Or contest and the SIRAH. This attractive context dedicated to food can be seen at the professional level (restaurants and culinary experts) as well as the scientific one with the Institut Paul Bocuse research center and the European Center for Health and Nutrition. Moreover, Lyon has a very strong academic science environment related to both life and human sciences, with renown laboratories in neurosciences and cognitive sciences, such as the Lyon Neurosciences Research Center, the Emotion and Cognition laboratory. <https://en.lyon-france.com/> .