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To predict the core gut microbial features associated with risk of developing diseases with potential demographic, adiposity, and dietary factors using advanced deep learning algorithms

Swathi Arulguppe Nagendra
BetterMeal AI, United States

Problem Statement: To predict the core gut microbial features associated with risk of developing diseases with potential demographic, adiposity, and dietary factors using advanced deep learning algorithms.

Research: Food and human health are inextricably linked. As such, revolutionary impacts on health have been derived from advances in the production and distribution of food relating to food safety and fortification with micronutrients. During the past two decades, it has become apparent that the human micro biome has the potential to modulate health, including in ways that may be related to diet and the composition of specific foods. Despite the excitement and potential surrounding this area, the complexity of the gut micro biome, the chemical composition of food and their interplay in situ remains a daunting task to fully understand. However, recent advances in high-throughput sequencing, metabolomics profiling, compositional analysis of food, and the emergence of electronic health records provide new sources of data that can contribute to addressing this challenge. Computational science will play an essential role in this effort as it will provide the foundation to integrate these data layers and derive insights capable of revealing and understanding the complex interactions between diet, gut micro biome, and health. Here, we review the current knowledge on diet-health-gut micro biota, relevant data sources, bioinformatics tools, machine learning capabilities, as well as the intellectual property and legislative regulatory landscape. We provide guidance on employing machine learning and data analytics, identify gaps in current methods, and describe new scenarios to be unlocked in the next few years in the context of current knowledge.

Biography

Swathi Arulguppe Nagendra is the CEO of BetterMeal AI and serves on its board of directors. Before BetterMeal, she was an artificial intelligence educator at Galvanize and was responsible for training many C-level execs, managers and non-tech people to data scientists worldwide. Her background in AI and nutritional research is now enabling BetterMeal AI to create strategic partnerships and collaborations that serve multiple customers in the healthcare community. She has also been a nominee of women In IT data leader of the year 2019, women of the Inspiration nominee 2021. She also won the impact challenge award for her NGO.

Swathi.arulguppe@gmail.com