In the past two decades, major advances have been made in the field of three-dimensional (3D) bioprinting\textsuperscript{[1-3]}. The term “three-dimensional (3D) bioprinting” is defined as “the use of computer-aided transfer processes for patterning and assembling living and non-living materials with a prescribed 2D or 3D organization in order to produce bioengineered structures serving in regenerative medicine, pharmacokinetic, and basic cell biology studies”\textsuperscript{[4-7]}. As opposed to conventional tissue engineering approaches, 3D bioprinting allows scalable and reproducible deposition of bioinks (biomaterials, living cells, and growth factors) with the use of highly advanced and automated additive manufacturing platforms. Complex bioengineered constructs can be fabricated by depositing bioinks, layer by layer, with precise control of the spatial arrangement of these functional components\textsuperscript{[4,8]}. The printing techniques for 3D bioprinting are commonly categorized into these five major categories\textsuperscript{[4]}: (a) Extrusion, (b) stereolithography, (c) inkjet, (d) laser-assisted, and (e) microvalve-based bioprinting. Hence, these keywords\textsuperscript{[4]}, “bioprinting technique – extrusion, stereolithography, inkjet, laser assisted, or microvalve based” + “biomaterials” + “cells,” are used to search for bioprinting related technical publications from Web of Science. Data have shown that research related to bioprinting has clearly grown exponentially since the year 2000 and the number of bioprinting related technical publications has been increasing steadily in the past 5 years (Figure 1). According to a comprehensive market survey by Roots Analysis\textsuperscript{[9]}, there are currently more than 70 bioprinters available which are either commercialized or under development, and more than 60% of these bioprinters utilize the extrusion technology for material deposition. It can be observed from Figure 1 that the extrusion-based printing technique remains to be the most widely used method in bioprinting, in which its popularity can be largely attributed to its fast printing speed, wide acceptance range of printable materials\textsuperscript{[4]}, and also the wide availability of commercial extrusion-based bioprinters. Moreover, each printing technique has its own merits and the selection of suitable printing techniques for bioprinting is application dependent.

Moving over to 3D food printing, 3D food printing remains an emerging field as compared to 3D bioprinting. The use of food materials with additive manufacturing technology, or commonly known as 3D food printing\textsuperscript{[10-12]}, has captivated the commercial sector for the past decade with potential convenience of low-cost food customization and precise nutrition control. In recent years, 3D food printing related research is gaining momentum with increased attention from the academic field and its technical publications has also increased significantly (Figure 2).
The keyword “3D food printing” is used to search for 3D food printing related technical publications from Web of Science. These publications are categorized into these five different categories of 3D food printing research: (a) Printing materials and recipes development, (b) printing technologies and techniques, (c) printing process optimizations, (d) ink printability optimizations, and (e) characterization studies.

It is evident that the novelty of 3D food printing research now is not just about constructing edible structures with additive manufacturing technologies\(^\text{[10]}\). In fact, more focus is emphasized on gaining a better understanding on developing...
new printing materials and recipes, optimizing the printing process and inks’ printability, and characterizing the 3D printed foods. Nevertheless, public acceptance, palatability, and food safety are also some of the critical areas for research to make 3D-printed foods available to the public for consumption in the near future.

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