Animation Script

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How are advances in technology improving dietary research?
Professor Deborah Kerr, Associate Professor Carol Boushey and
Associate Professor Fengqing (Maggie) Zhu

To make the most out of this script, you could:

· Stick it in your book as a record of watching Deborah, Carol and Maggie's animation
· Pause the animation and make notes as you go
· Add your own illustrations to the sheet
· Create your own animation to accompany it
· Add notes from classroom discussions
· Make notes of areas you will investigate further
· Make notes of key words and definitions
· Add questions you would like answered – you can message Deborah, Carol and Maggie through the comments box at the bottom of their article: **www.futurumcareers.com/how-are-advances-in-technology-improving-dietary-research**

SCRIPT:

How would you describe what you eat and drink, and how much? Without being a trained dietitian, evaluating dietary intake is not easy! Dietitians describe what people eat in terms of dietary patterns. They study what people eat and drink to help individuals monitor their health and investigate the dietary patterns of populations.

Dietary assessment usually involves a dietitian asking someone to remember what they ate and drank the previous day, or the person recording everything they consume, each time they eat and drink. However, people often forget exactly what and how much they ate and drank, and keeping detailed notes is time-consuming.

As researchers who specialise in dietary assessment, Professor Deborah Kerr and Associate Professor Carol Boushey realised they needed to combine their knowledge of diet and food composition with the skills and expertise of computer engineer Associate Professor Fengqing (Maggie) Zhu if they were to overcome the challenges of assessing diet.

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Deborah, Carol, Maggie and their team are harnessing the power of technology to improve dietary assessment methods. Using their Technology Assisted Dietary Assessment, or TADA, system, participants take a photo of their meal with the app, and the software behind the system recognises what food or drink is in the image.

While facial recognition technology is well-developed, Maggie was one of the first people to apply image recognition to food, using machine learning to train TADA. It was challenging to teach TADA to differentiate between foods with similar appearances and to recognise the many different forms foods come in.

Once TADA has identified the foods in the image, the next challenge is calculating the food's nutritional content. Automatically estimating the volume of foods from images is still a challenge and is currently done by trained analysts. However, by including a fiducial marker in the photo as a point of reference for image processing, Maggie hopes that by using machine learning techniques she can train TADA to perform this calculation automatically in the future.

Then, with the portion size estimated, the nutritional value can be calculated by linking to a food composition database that contains details of the food and nutrient content of different foods. TADA uses these data to calculate the food groups consumed and the nutritional value of all the food and drink in the photo.

To test TADA, participants visited the team's food laboratory, where they used the app to take photos of their meals. Deborah and Carol also asked participants' opinions on the app, as its useability is just as important as its effectiveness. By developing new techniques for dietary assessment, Deborah, Carol and Maggie are contributing to improved health and nutrition outcomes for individuals and whole populations.

What could you achieve in the field of dietetics and technology?