Table S1. Adulteration patterns and compositions of in-homogeneously adulterated milk powder samples.

pattern	adulterant	concentration (w/w)
A	melamine	0.3%
B	urea	0.3%
C	starch	0.3%
D	whey	0.3%
E	maltodextrin	0.3%
F	melamine / starch	0.1% / 0.2%
H	urea / whey	0.1% / 0.2%

Table S2. The ADNN net structure in single-point mode.

generator	discriminator
Conv_1d (1,1,7) + Relu	Conv_1d (1,1,7) + Relu
Conv_1d (1,3,7) + Relu	Conv_1d (1,3,7) + Relu
Conv_1d (3,6,3) + Relu	Conv_1d (3,6,3) + Relu
Conv_1d (6,1,1) + Tanh	Conv_1d (6,1,3) + Relu
	Linear
	Linear
	Sigmoid

Table S3. The ADNN net structure in segmentation mode.

generator	discriminator
Conv_2d (1,1,3,3) + Relu	Conv_2d (1,1,3,3) + Relu
Conv_2d (1,3,3,3) + Relu	Conv_2d (1,3,3,3) + Relu
Conv_2d (3,6,1,3) + Relu	Conv_2d (3,1,3,3) + Relu
Conv_2d (6,1,1,1) + Tanh	MaxPooling
	Conv_1d (1,1,3)
	Conv_1d (1,1,3)
	Linear
	Linear
	Sigmoid