Non-Newtonian ViRheometry via Similarity Analysis: Supplementary Material B

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CCS Concepts: • **Computing methodologies** → **Physical simulation**.

Additional Key Words and Phrases: Material parameter estimation, Herschel–Bulkley, shear thinning fluids, large-scale inclusions, video-based estimation

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1 CAPTURED AND SIMULATED FRAMES DURING OPTIMIZATION

We show individual captured and simulated frames as well as their differences. We list the product names of the materials in Table 1. The frames for a Japanese thickened Worcestershire sauce are in Figures 1 and 2; the frames for a moisturizing milk are in Figures 3 and 4; the frames for a Japanese pork cutlet sauce are in Figures 5 and 6; the frames for a lotion are in Figures 7 and 8; the frames for a sweet bean paste are in Figures 9 and 10; the frames for a Japanese cabbage pancake sauce are in Figures 11 and 12; the frames for a mustard are in Figures 13 and 14; the frames for a Carbonara sauce are in Figures 15 and 16; the frames for a Pomodoro sauce are in Figures 17 and 18; the frames for a Cobb salad dressing are in Figures 19 and 20; the frames for a thousand island dressing are in Figures 21 and 22; the frames for a sesame dressing are in Figures 23 and 24; the frames for a congee are in Figures 25 and 26.

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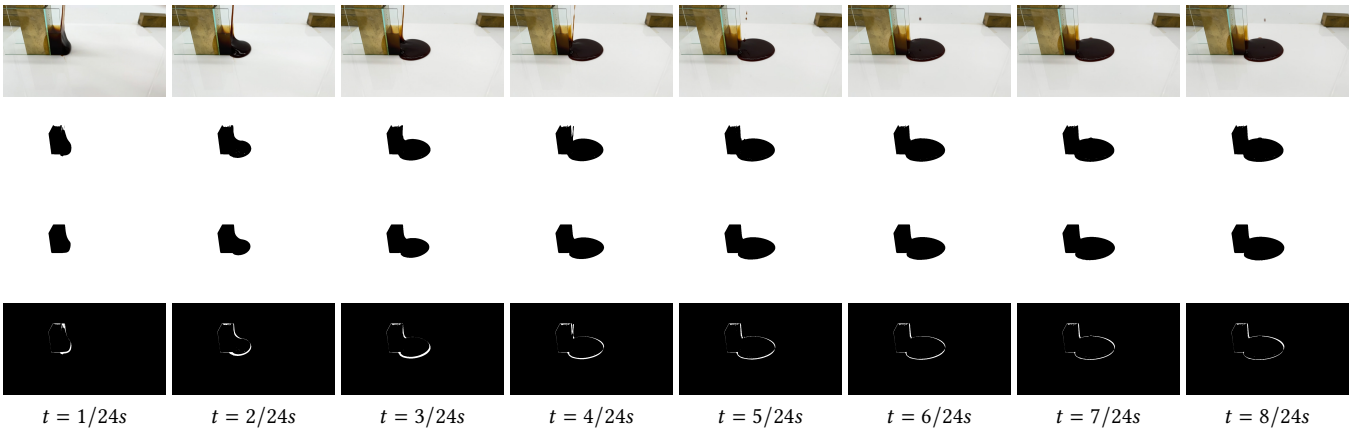

Fig. 1. Optimization with the first setup for a Japanese thickened Worcestershire sauce. From top to bottom: captured frames, their binary coded images, simulated results, and difference images between the binary coded and simulated images.

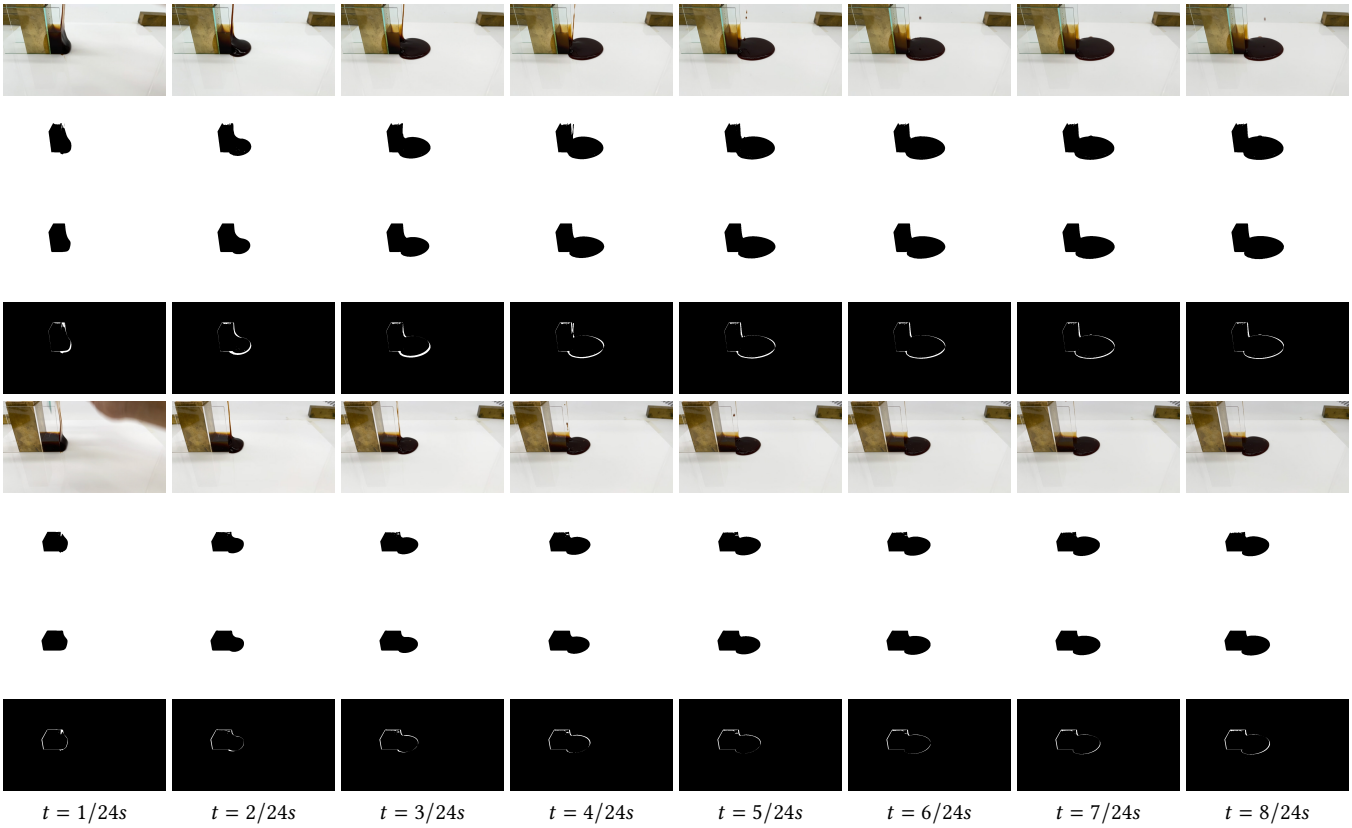

Fig. 2. Optimization with the first and second setups for a Japanese thickened Worcestershire sauce. From top to bottom: captured frames (first setup), their binary coded images (first setup), simulated results (first setup), difference images between the binary coded and simulated images (first setup), captured frames (second setup), their binary coded images (second setup), simulated results (second setup), difference images between the binary coded and simulated images (second setup).

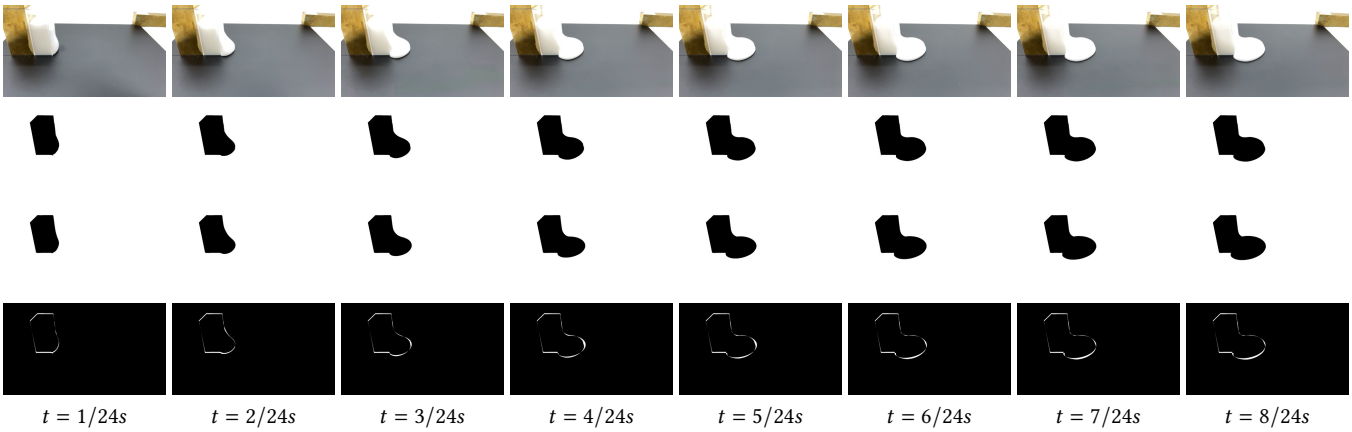

Fig. 3. Optimization with the first setup for a moisturizing milk. From top to bottom: captured frames, their binary coded images, simulated results, and difference images between the binary coded and simulated images.

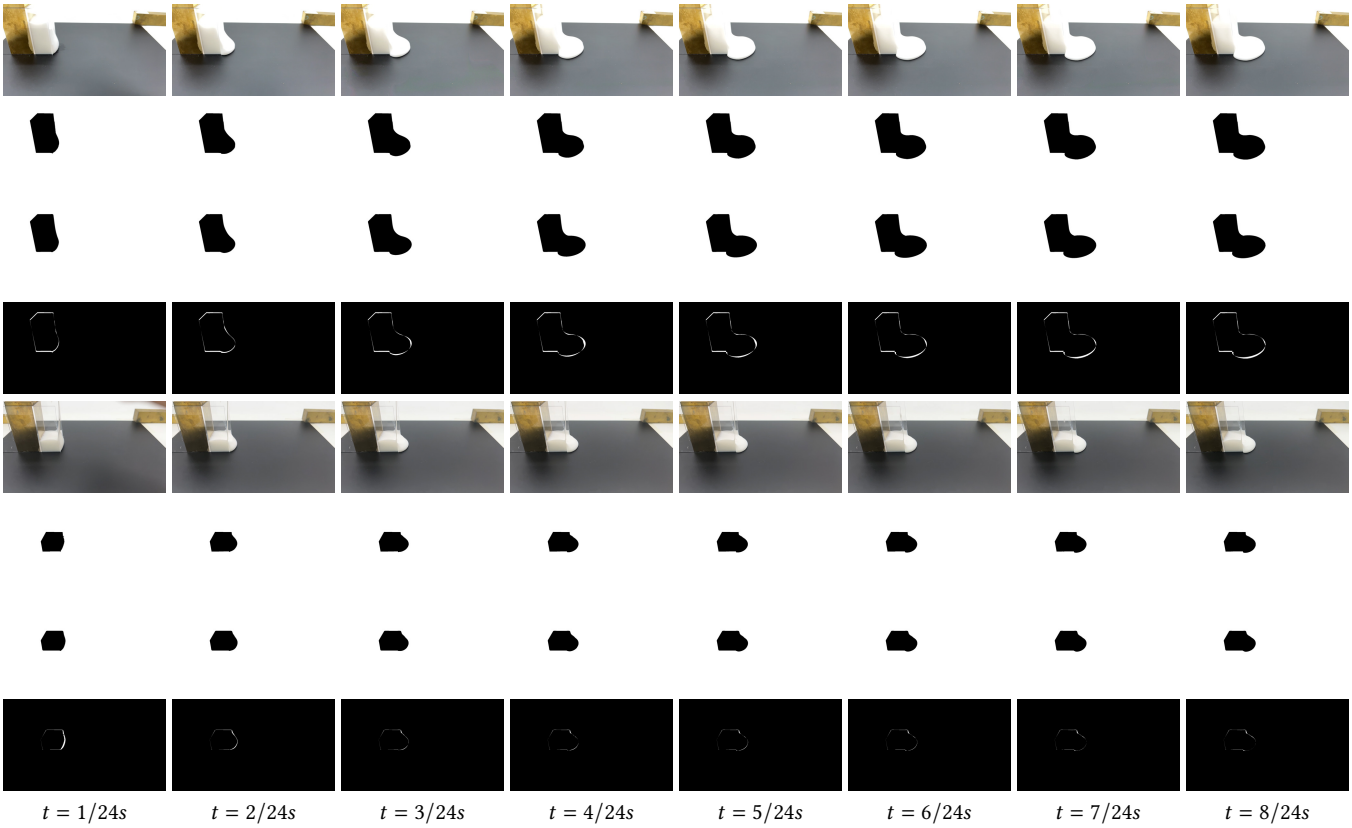

Fig. 4. Optimization with the first and second setups for a moisturizing milk. From top to bottom: captured frames (first setup), their binary coded images (first setup), simulated results (first setup), difference images between the binary coded and simulated images (first setup), captured frames (second setup), their binary coded images (second setup), simulated results (second setup), difference images between the binary coded and simulated images (second setup).

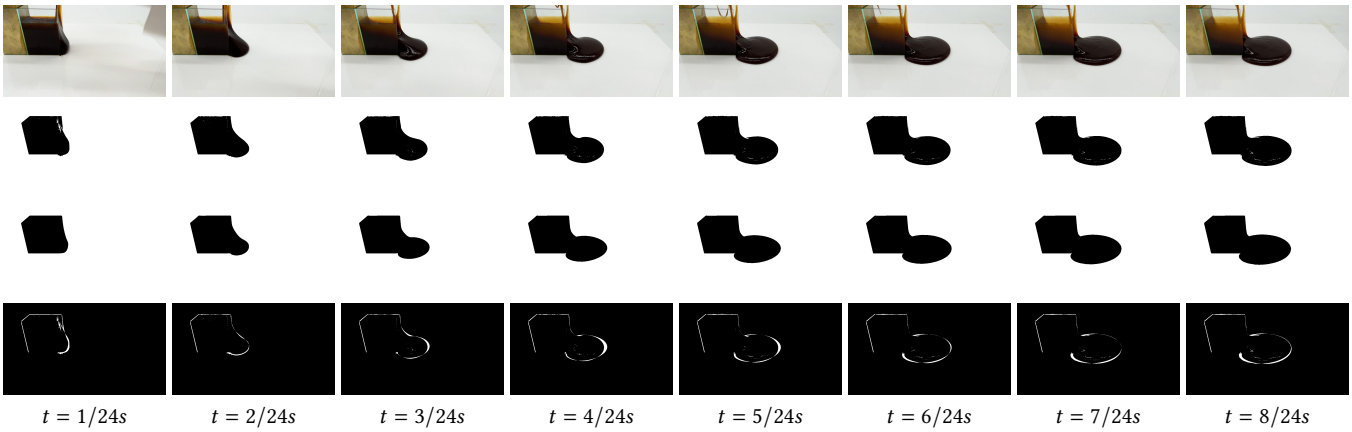

Fig. 5. Optimization with the first setup for a Japanese pork cutlet sauce. From top to bottom: captured frames, their binary coded images, simulated results, and difference images between the binary coded and simulated images.

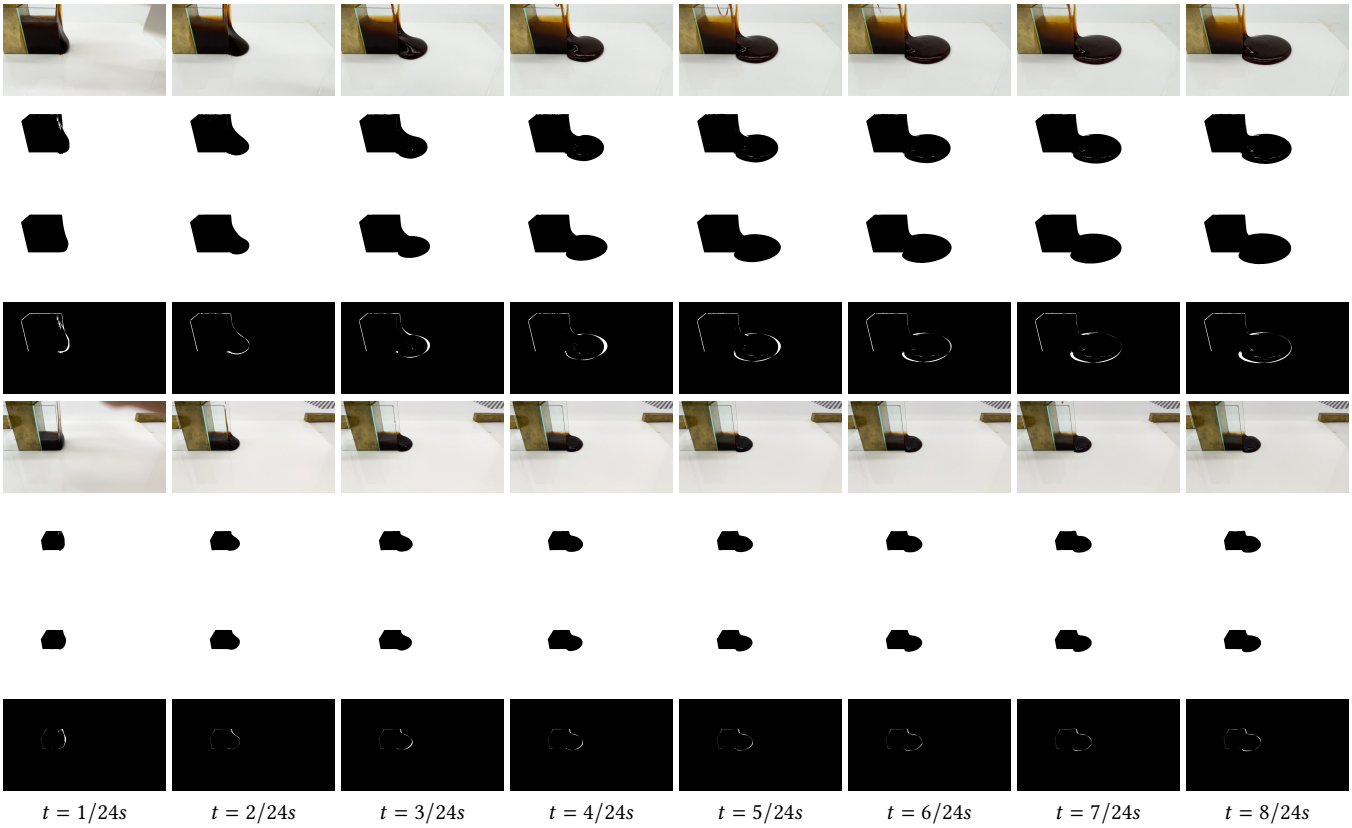

Fig. 6. Optimization with the first and second setups for a Japanese pork cutlet sauce. From top to bottom: captured frames (first setup), their binary coded images (first setup), simulated results (first setup), difference images between the binary coded and simulated images (first setup), captured frames (second setup), their binary coded images (second setup), simulated results (second setup), difference images between the binary coded and simulated images (second setup).

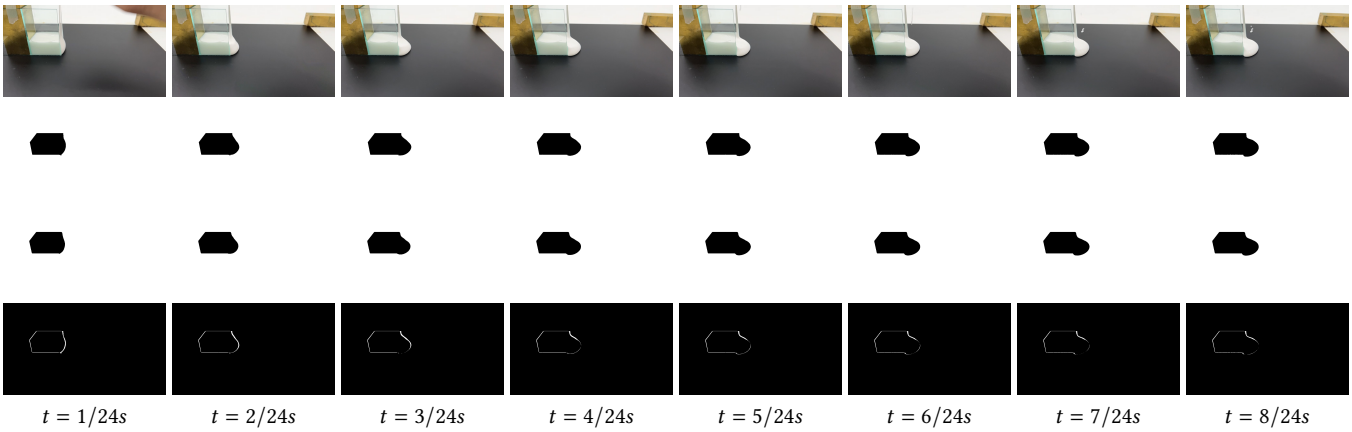

Fig. 7. Optimization with the first setup for a lotion. From top to bottom: captured frames, their binary coded images, simulated results, and difference images between the binary coded and simulated images.

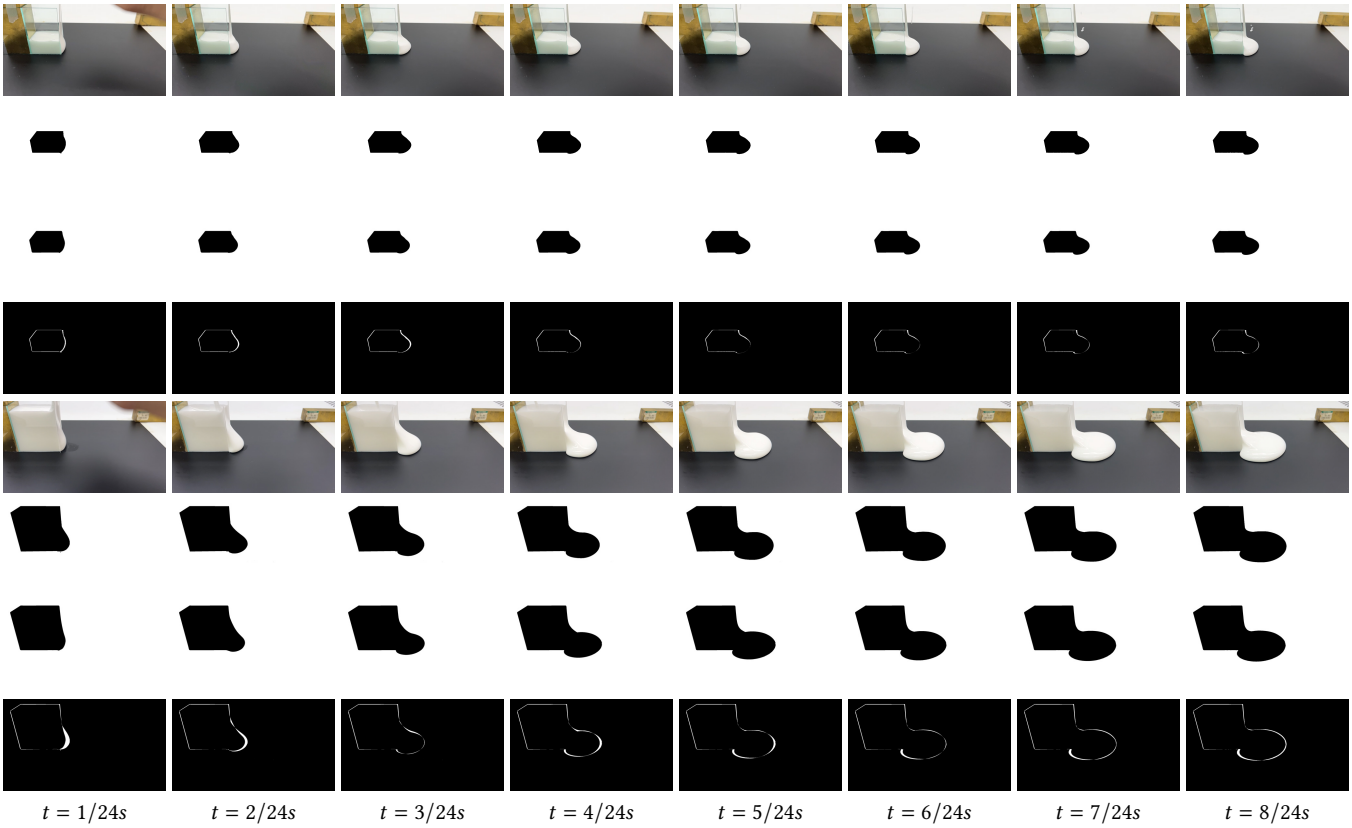

Fig. 8. Optimization with the first and second setups for a lotion. From top to bottom: captured frames (first setup), their binary coded images (first setup), simulated results (first setup), difference images between the binary coded and simulated images (first setup), captured frames (second setup), their binary coded images (second setup), simulated results (second setup), difference images between the binary coded and simulated images (second setup).

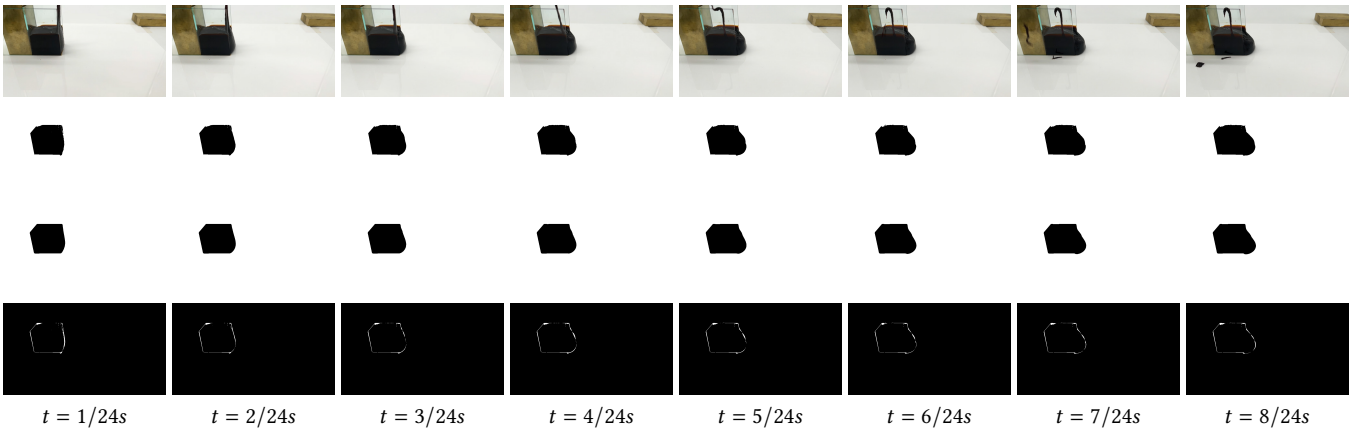

Fig. 9. Optimization with the first setup for a sweet bean paste. From top to bottom: captured frames, their binary coded images, simulated results, and difference images between the binary coded and simulated images.

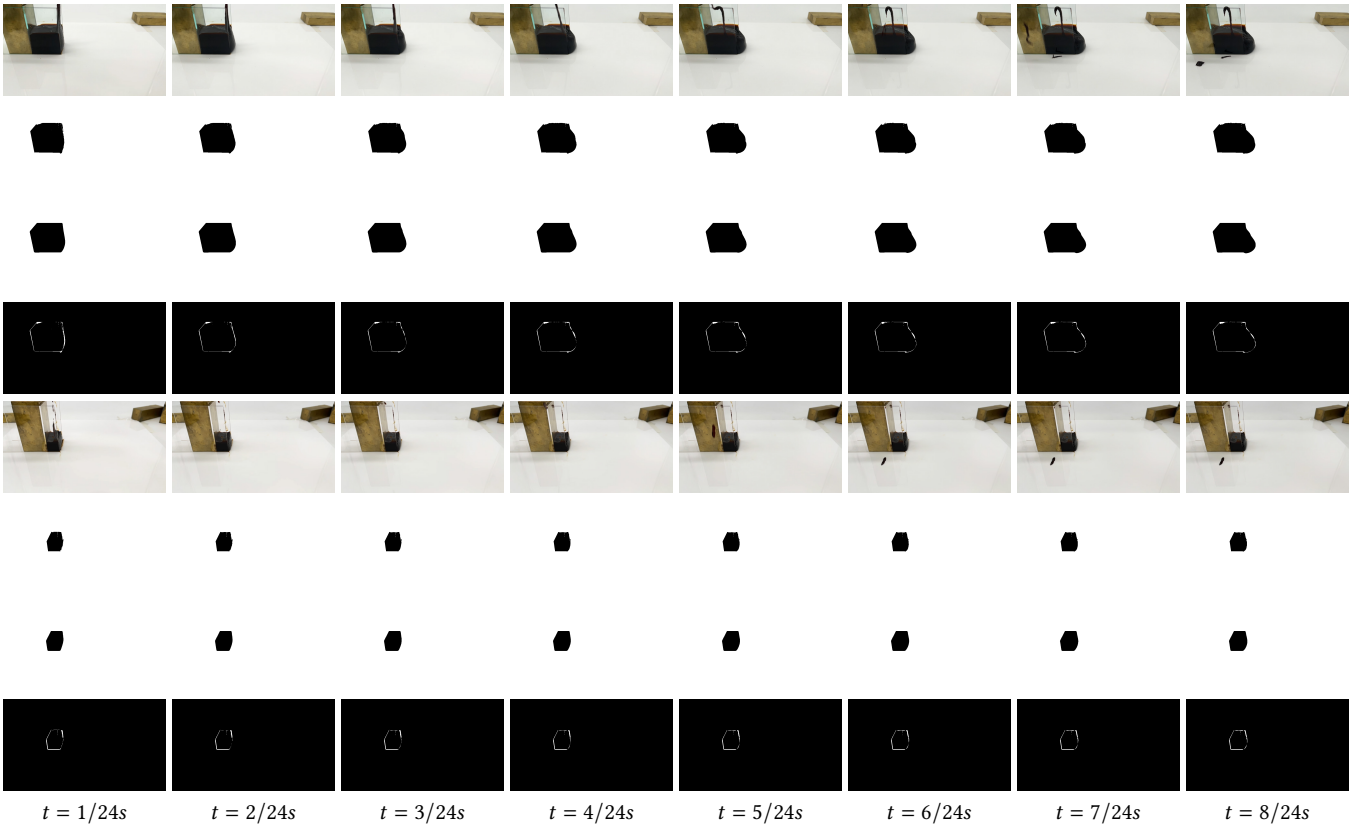

Fig. 10. Optimization with the first and second setups for a sweet bean paste. From top to bottom: captured frames (first setup), their binary coded images (first setup), simulated results (first setup), difference images between the binary coded and simulated images (first setup), captured frames (second setup), their binary coded images (second setup), simulated results (second setup), difference images between the binary coded and simulated images (second setup).

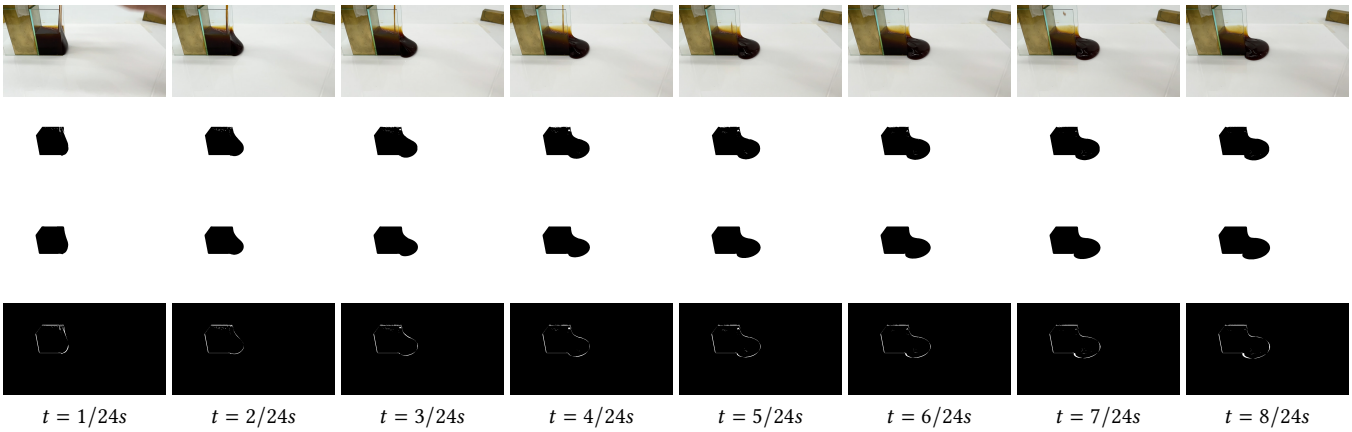

Fig. 11. Optimization with the first setup for a Japanese cabbage pancake sauce. From top to bottom: captured frames, their binary coded images, simulated results, and difference images between the binary coded and simulated images.

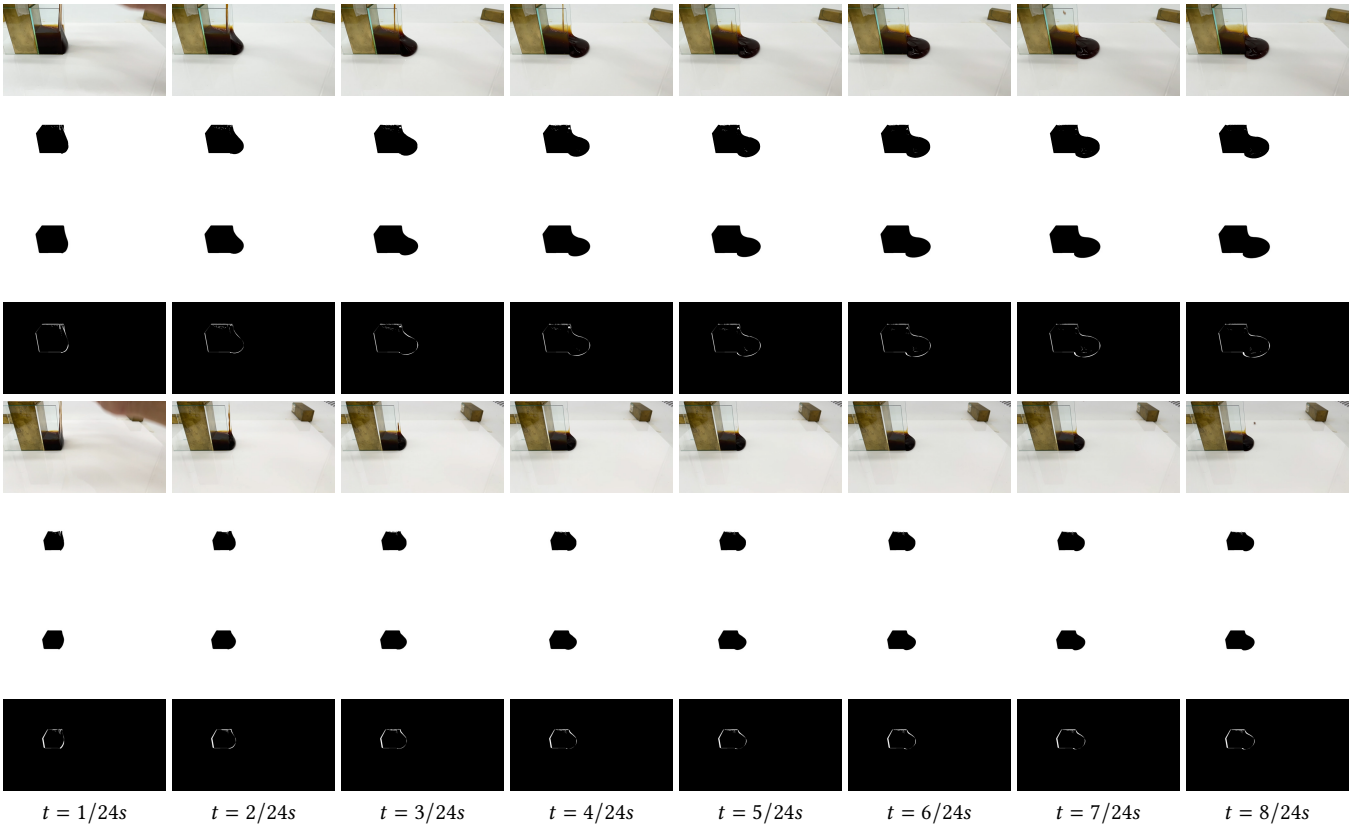

Fig. 12. Optimization with the first and second setups for a Japanese cabbage pancake sauce. From top to bottom: captured frames (first setup), their binary coded images (first setup), simulated results (first setup), difference images between the binary coded and simulated images (first setup), captured frames (second setup), their binary coded images (second setup), simulated results (second setup), difference images between the binary coded and simulated images (second setup).

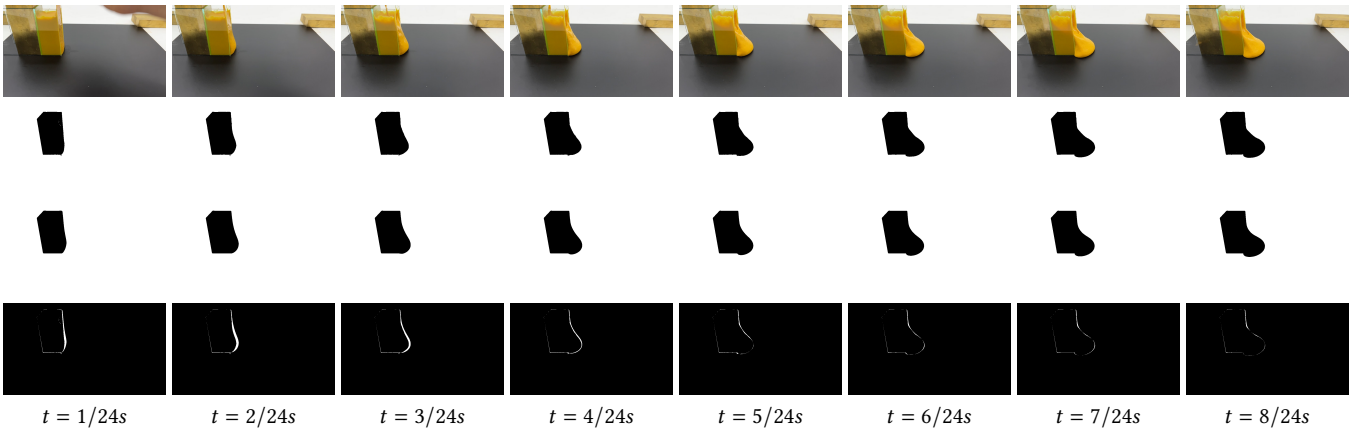

Fig. 13. Optimization with the first setup for a mustard. From top to bottom: captured frames, their binary coded images, simulated results, and difference images between the binary coded and simulated images.

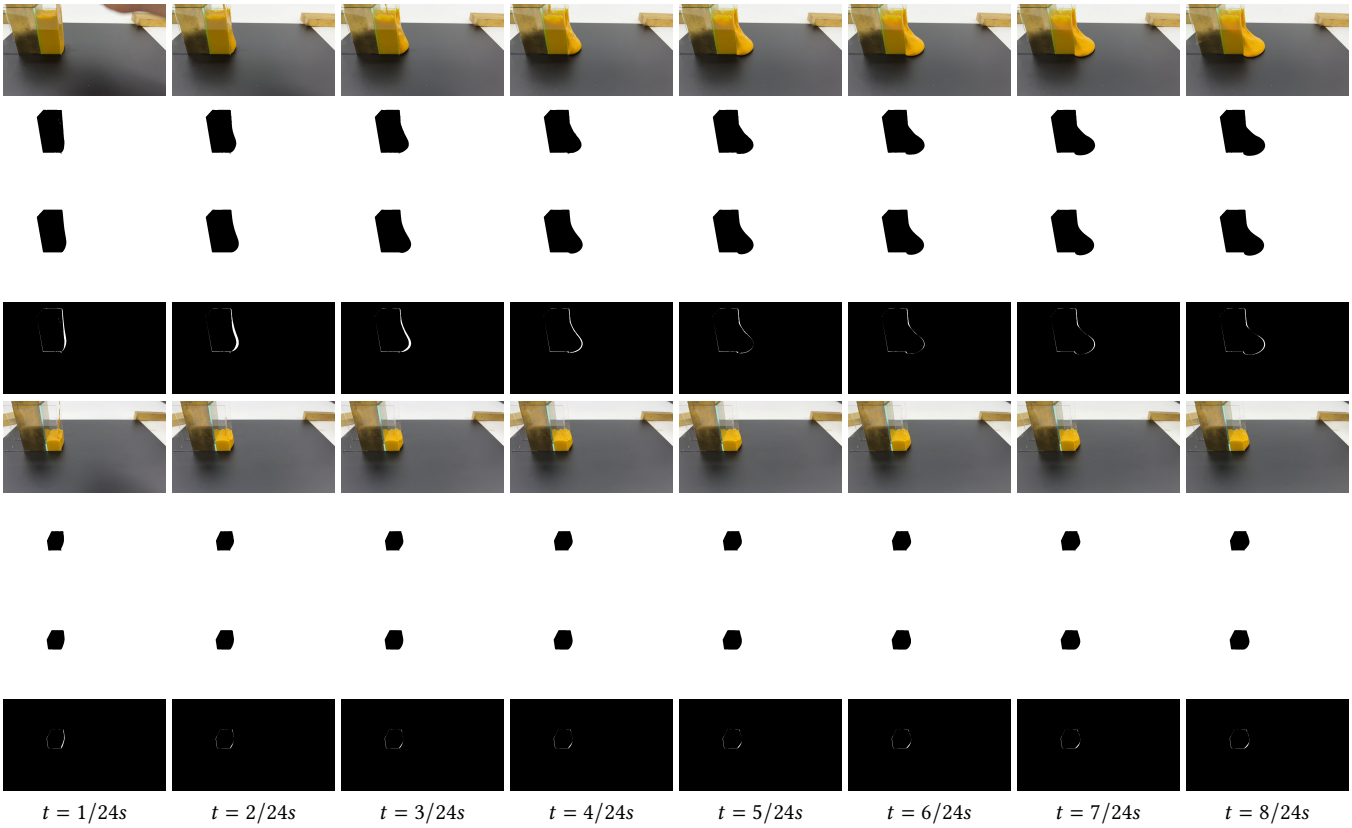

Fig. 14. Optimization with the first and second setups for a mustard. From top to bottom: captured frames (first setup), their binary coded images (first setup), simulated results (first setup), difference images between the binary coded and simulated images (first setup), captured frames (second setup), their binary coded images (second setup), simulated results (second setup), difference images between the binary coded and simulated images (second setup).

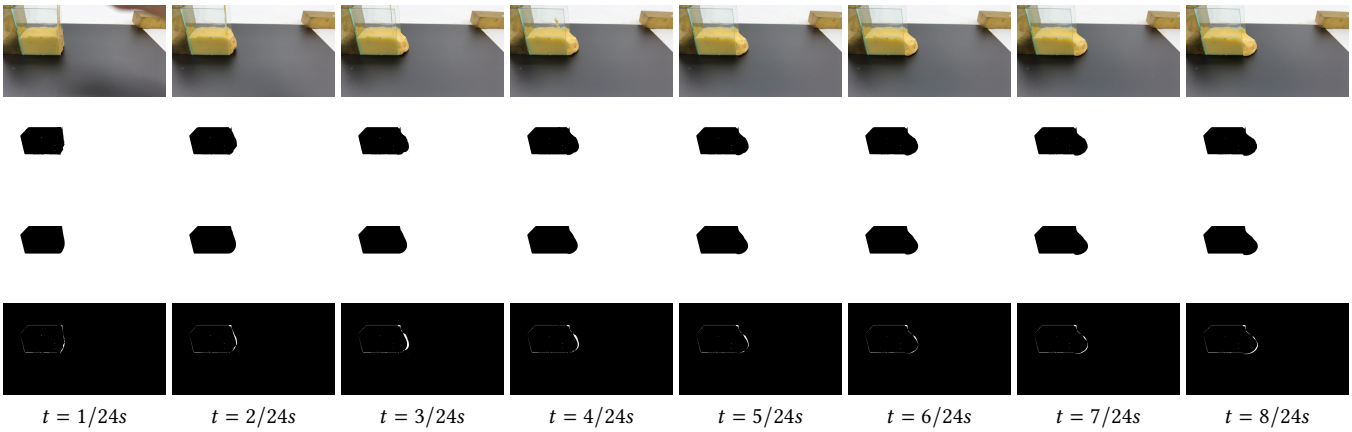

Fig. 15. Optimization with the first setup for a Carbonara sauce. From top to bottom: captured frames, their binary coded images, simulated results, and difference images between the binary coded and simulated images.

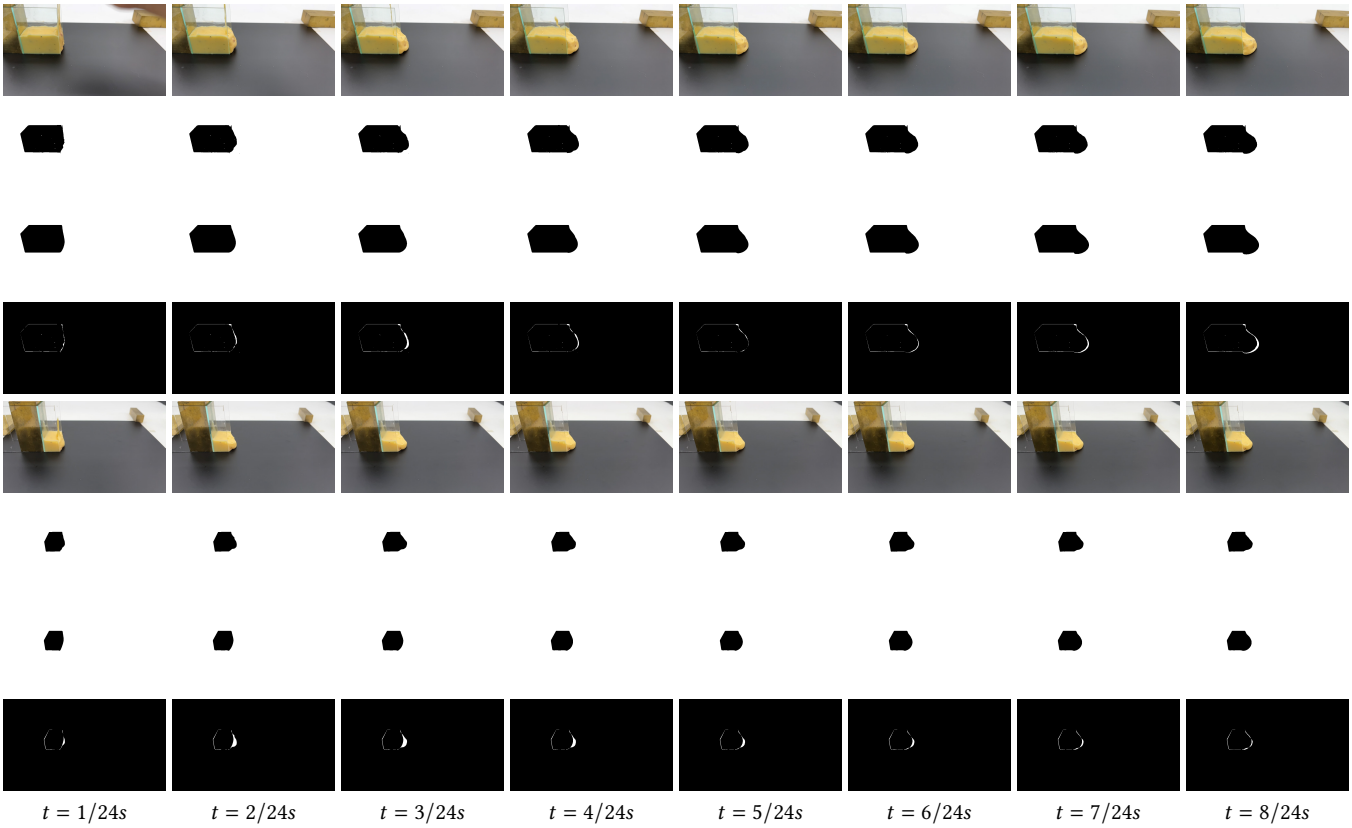

Fig. 16. Optimization with the first and second setups for a Carbonara sauce. From top to bottom: captured frames (first setup), their binary coded images (first setup), simulated results (first setup), difference images between the binary coded and simulated images (first setup), captured frames (second setup), their binary coded images (second setup), simulated results (second setup), difference images between the binary coded and simulated images (second setup).

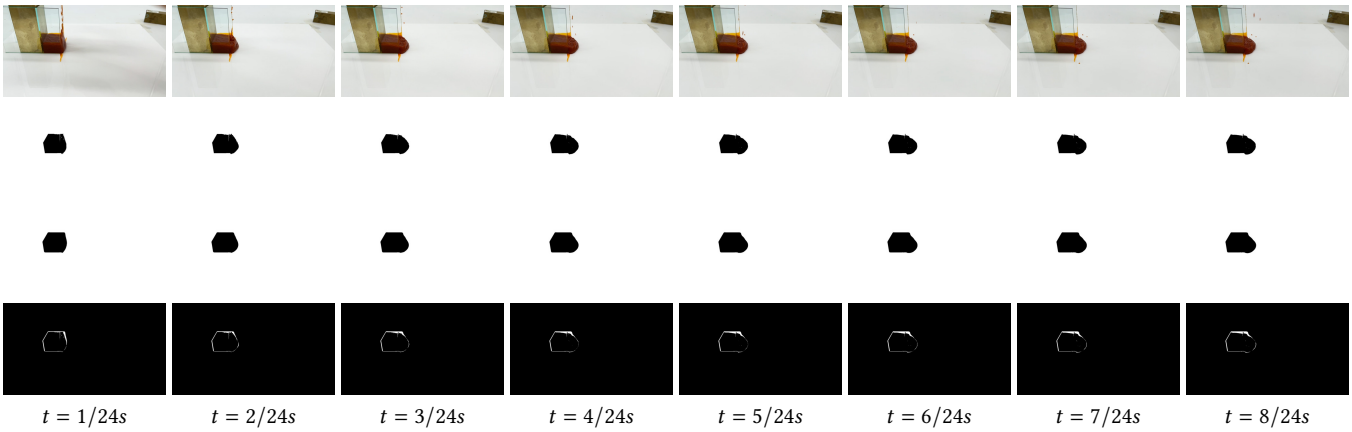

Fig. 17. Optimization with the first setup for a Pomodoro sauce. From top to bottom: captured frames, their binary coded images, simulated results, and difference images between the binary coded and simulated images.

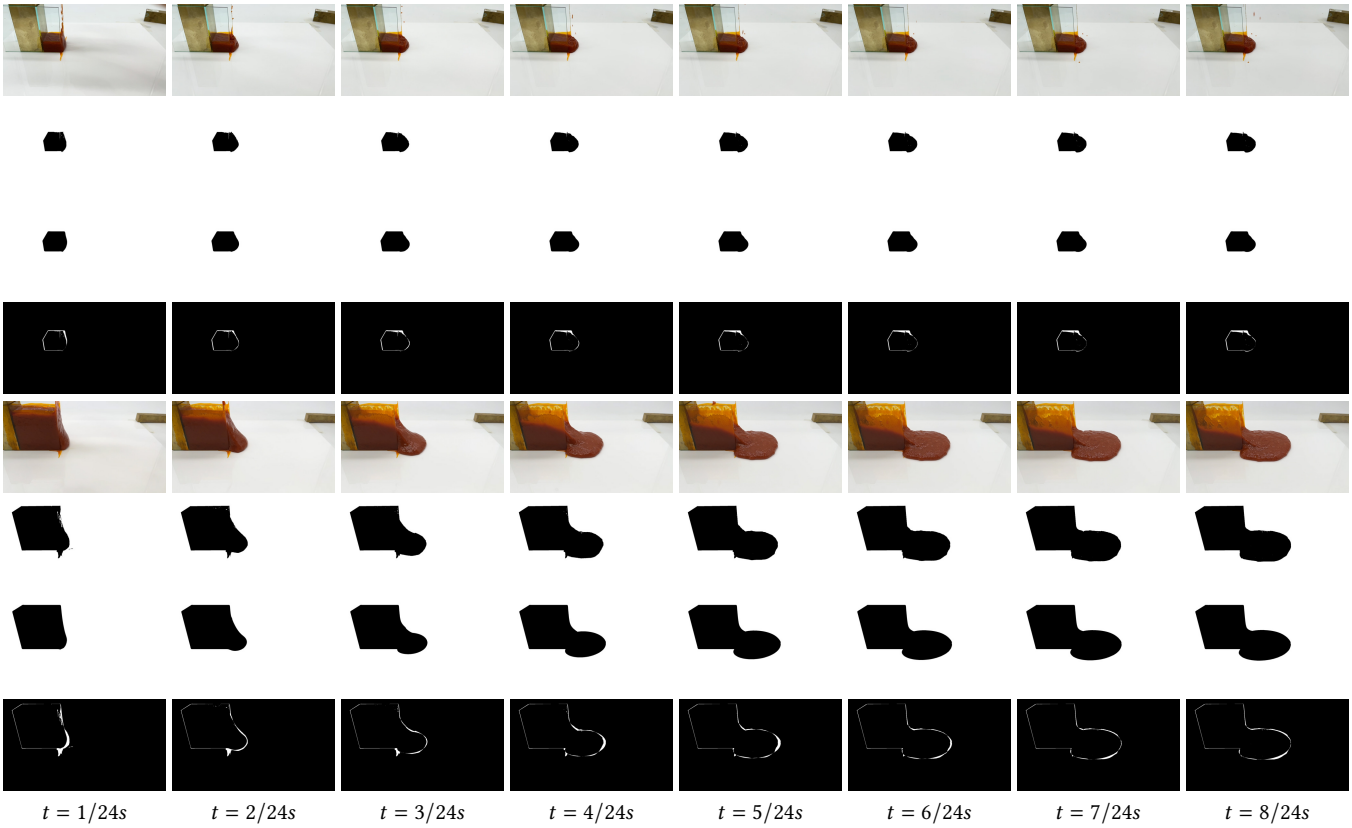

Fig. 18. Optimization with the first and second setups for a Pomodoro sauce. From top to bottom: captured frames (first setup), their binary coded images (first setup), simulated results (first setup), difference images between the binary coded and simulated images (first setup), captured frames (second setup), their binary coded images (second setup), simulated results (second setup), difference images between the binary coded and simulated images (second setup).

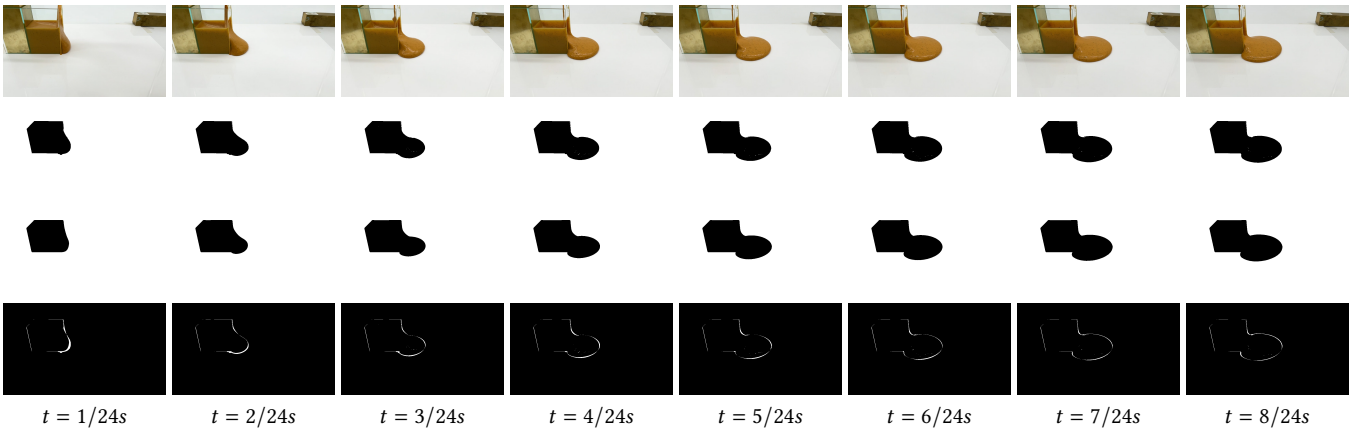

Fig. 19. Optimization with the first setup for a Cobb salad dressing. From top to bottom: captured frames, their binary coded images, simulated results, and difference images between the binary coded and simulated images.

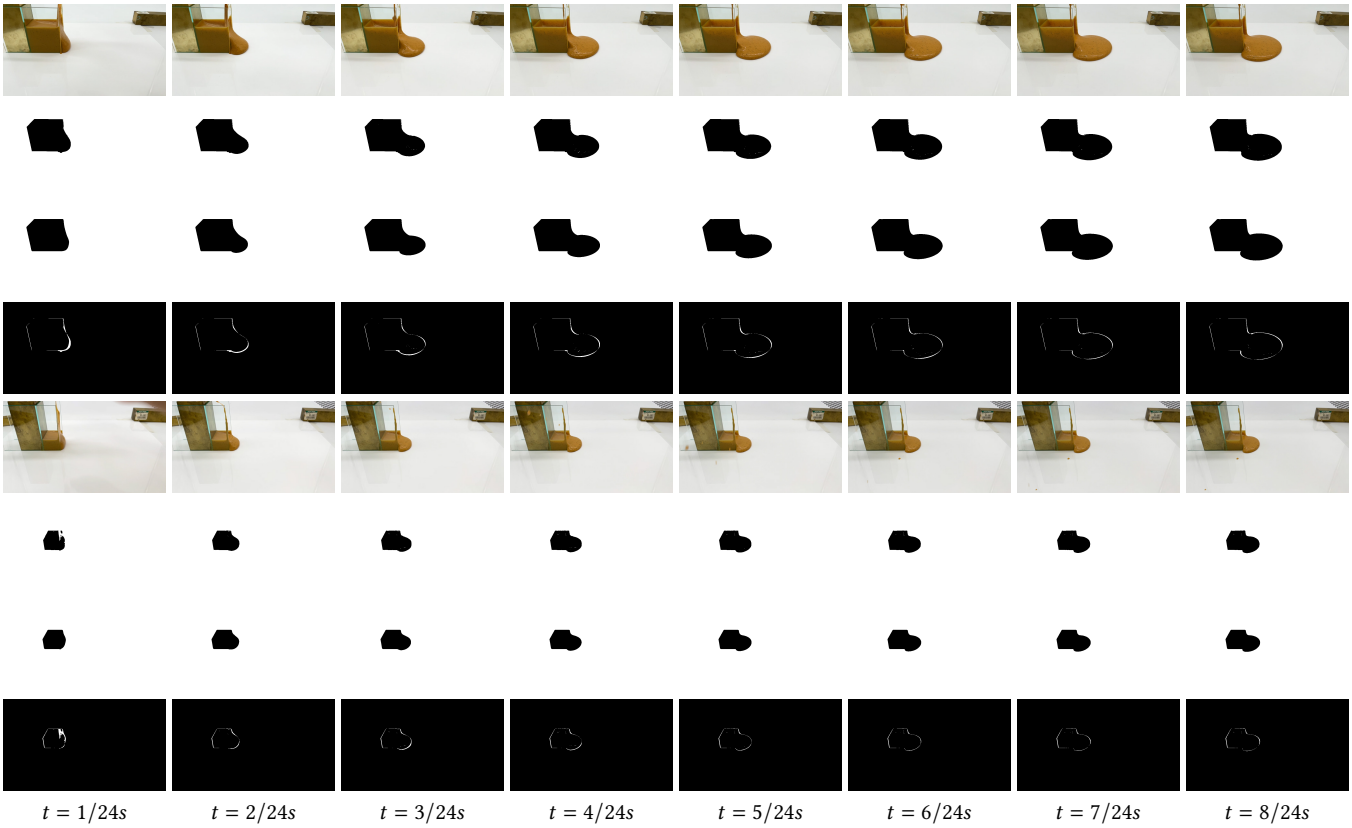

Fig. 20. Optimization with the first and second setups for a Cobb salad dressing. From top to bottom: captured frames (first setup), their binary coded images (first setup), simulated results (first setup), difference images between the binary coded and simulated images (first setup), captured frames (second setup), their binary coded images (second setup), simulated results (second setup), difference images between the binary coded and simulated images (second setup).

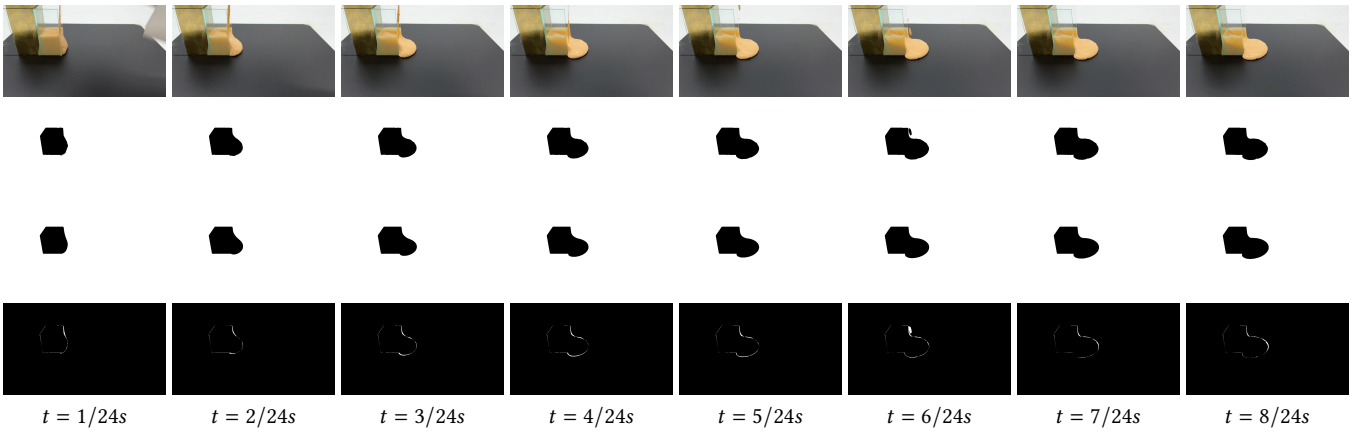

Fig. 21. Optimization with the first setup for a thousand island dressing. From top to bottom: captured frames, their binary coded images, simulated results, and difference images between the binary coded and simulated images.

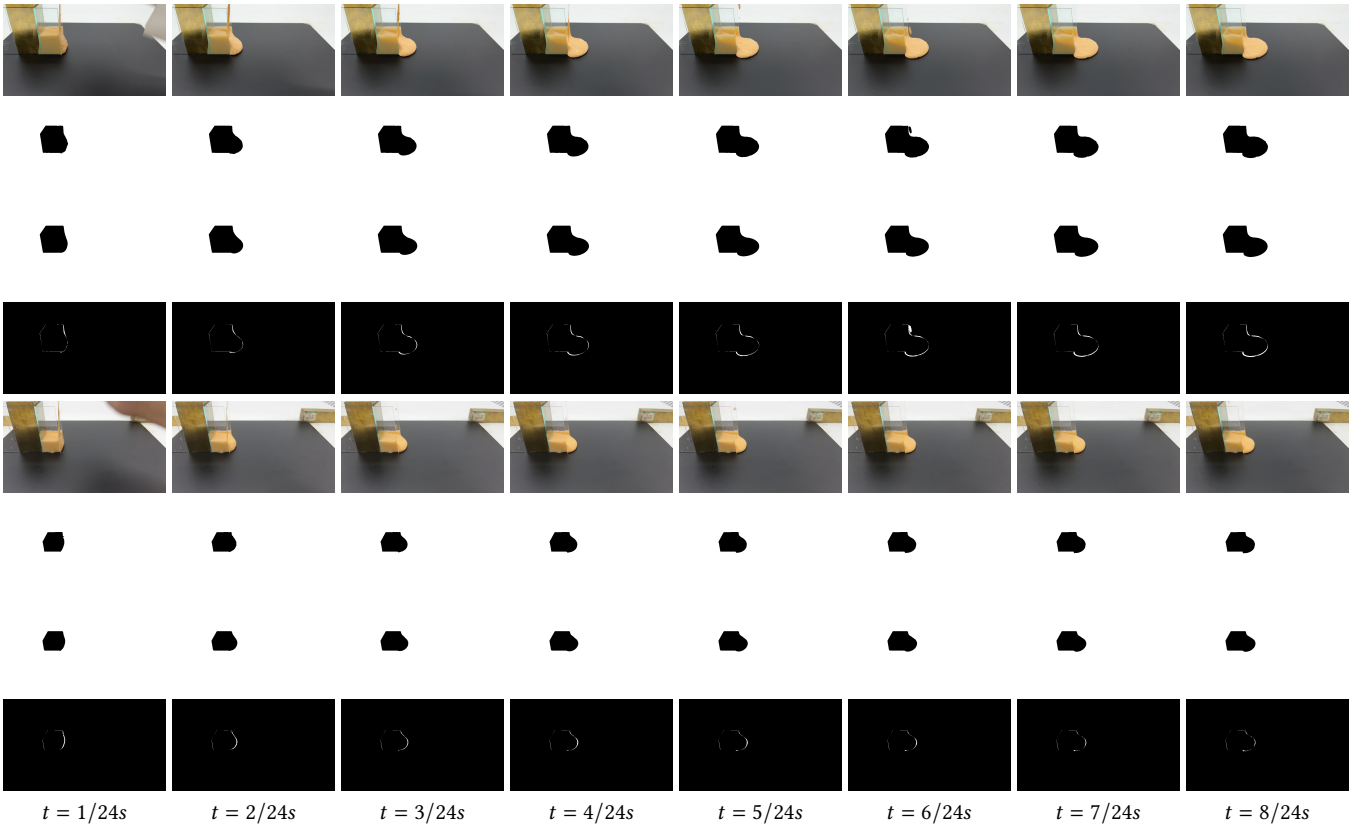

Fig. 22. Optimization with the first and second setups for a thousand island dressing. From top to bottom: captured frames (first setup), their binary coded images (first setup), simulated results (first setup), difference images between the binary coded and simulated images (first setup), captured frames (second setup), their binary coded images (second setup), simulated results (second setup), difference images between the binary coded and simulated images (second setup).

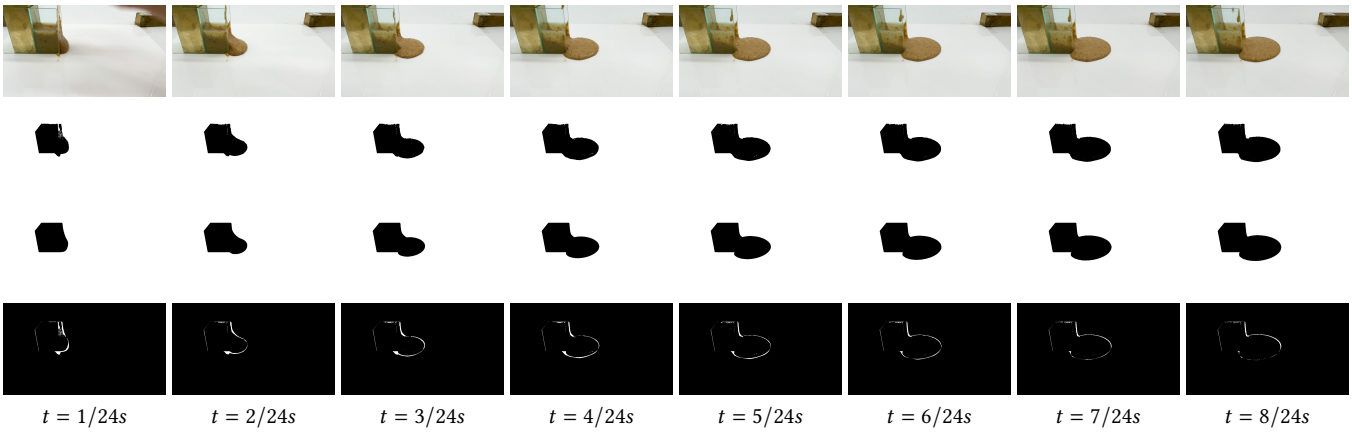

Fig. 23. Optimization with the first setup for a sesame dressing. From top to bottom: captured frames, their binary coded images, simulated results, and difference images between the binary coded and simulated images.

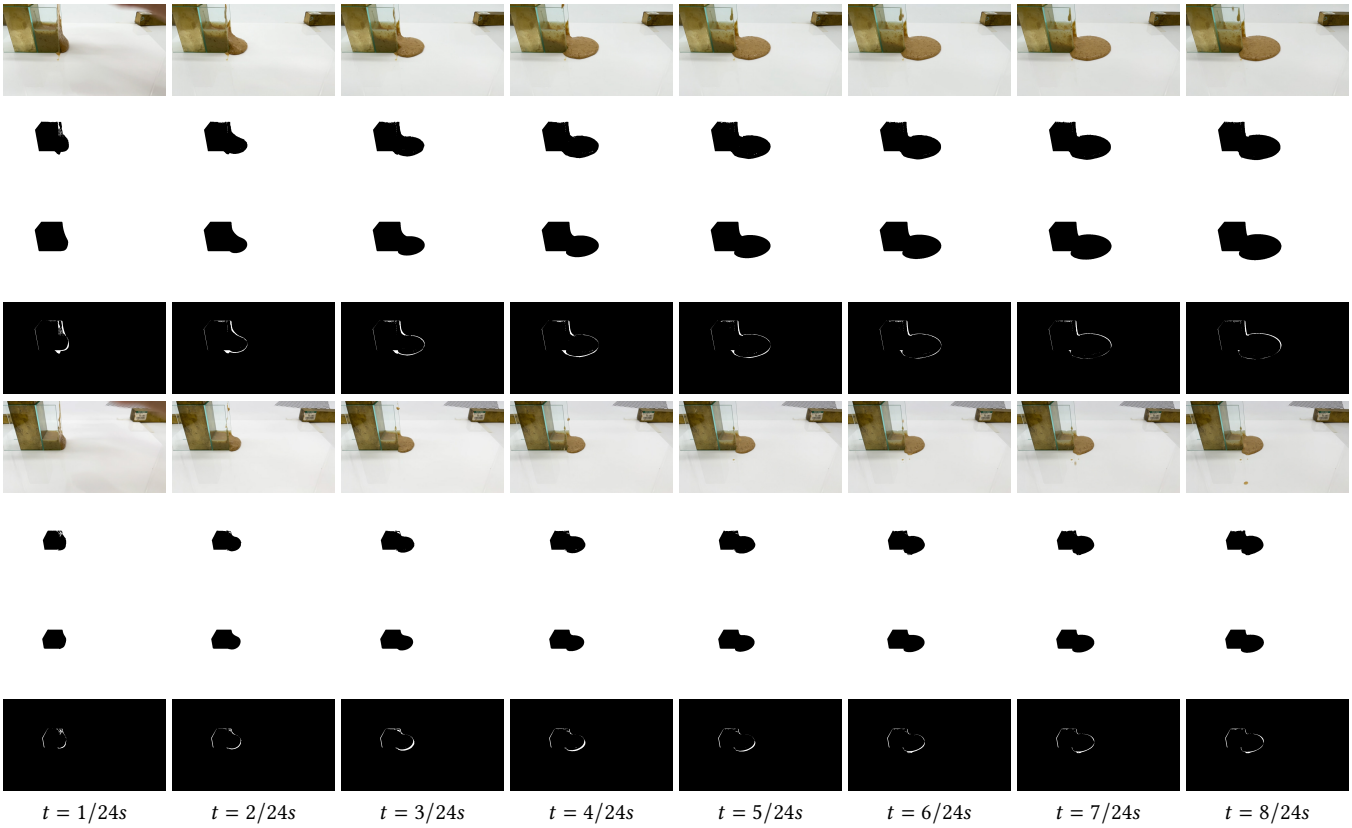

Fig. 24. Optimization with the first and second setups for a sesame dressing. From top to bottom: captured frames (first setup), their binary coded images (first setup), simulated results (first setup), difference images between the binary coded and simulated images (first setup), captured frames (second setup), their binary coded images (second setup), simulated results (second setup), difference images between the binary coded and simulated images (second setup).

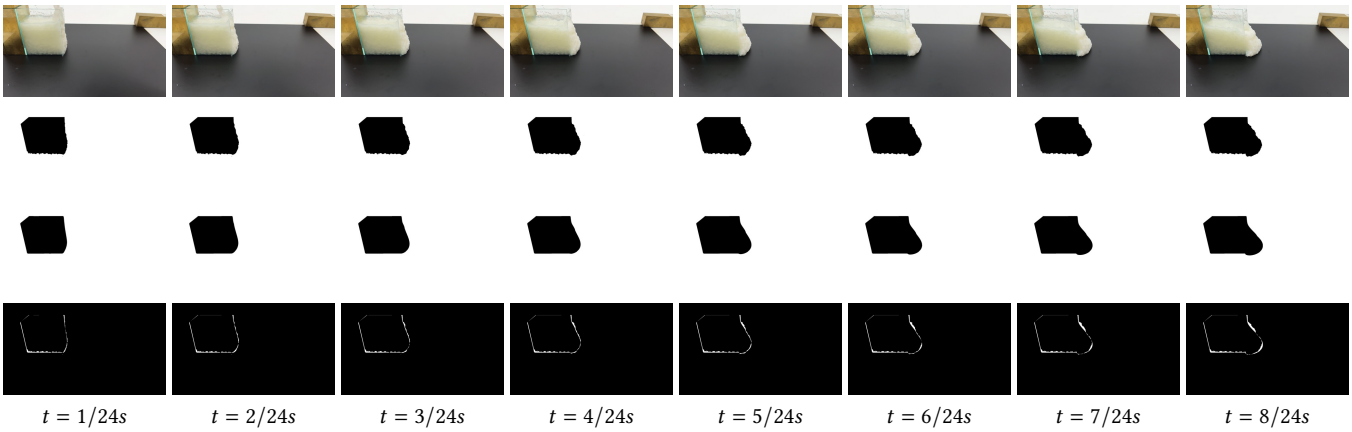

Fig. 25. Optimization with the first setup for a congee. From top to bottom: captured frames, their binary coded images, simulated results, and difference images between the binary coded and simulated images.

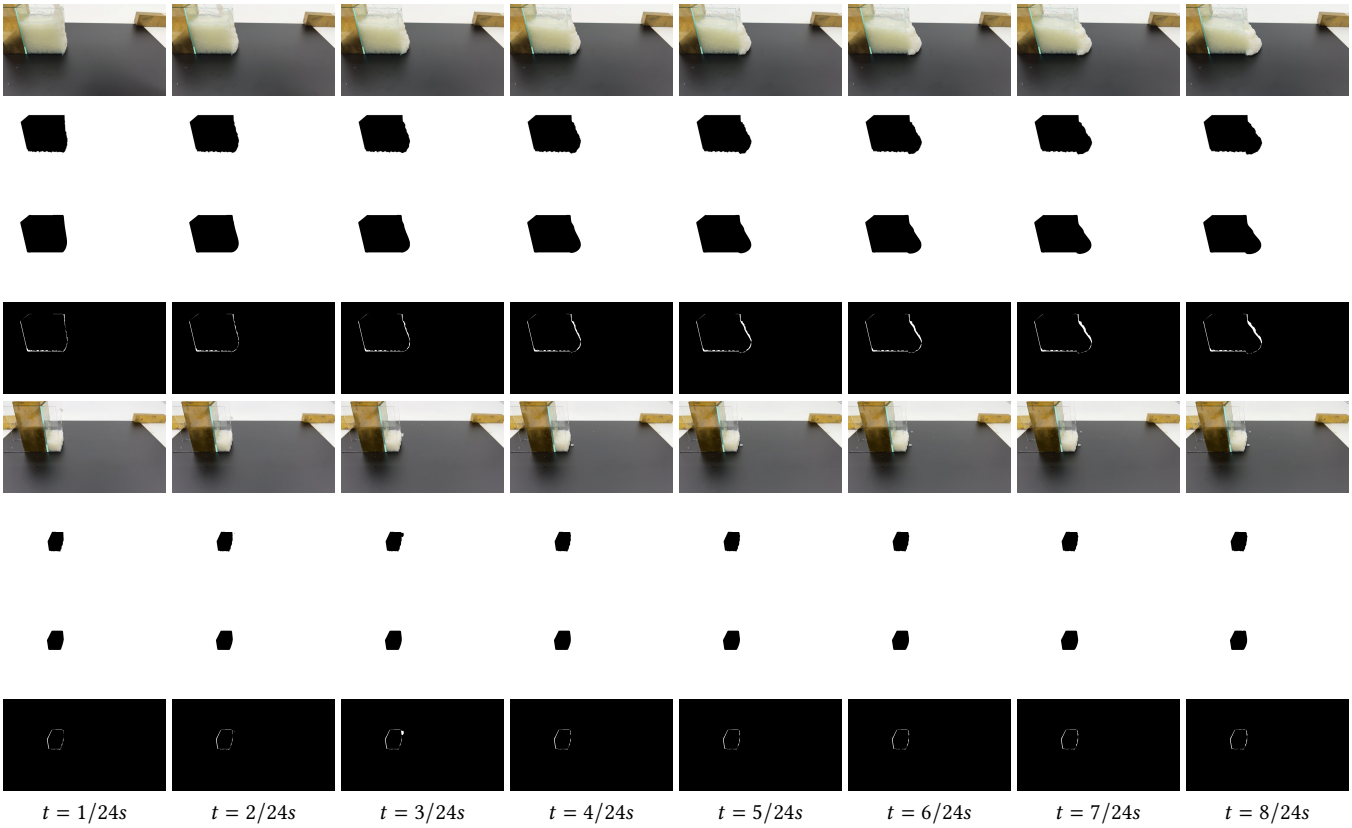

Fig. 26. Optimization with the first and second setups for a congee. From top to bottom: captured frames (first setup), their binary coded images (first setup), simulated results (first setup), difference images between the binary coded and simulated images (first setup), captured frames (second setup), their binary coded images (second setup), simulated results (second setup), difference images between the binary coded and simulated images (second setup).

Table 1. Material details.

Material	Product name	Selling agency or brand name	Product unit size
Moisturizing milk	Moisturizing milk (moisture type)	MUJI	200cm^3
Japanese pork cutlet sauce	Tonkatsu sauce	Bull-Dog	300cm^3
Japanese thickened Worcestershire sauce	Chuno sauce	Bull-Dog	300cm^3
Japanese cabbage pancake sauce	Okonomi sauce	Otafuku	500g
Lotion	Hiruserine Lotion	Cogit	100cm^3
Sweet bean paste	Tenmenjan	Lee Kum Kee (imported by S & B)	90g
Mustard	Mustard	S & B	150g
Thousand island dressing	Thousand island dressing	Kewpie	180cm^3
Cobb salad dressing	Cobb salad dressing	Kewpie	180cm^3
Sesame dressing	Deep roasted sesame dressing	Kewpie	180cm^3
Pomodoro sauce	Pomodoro (the sweetness of ripe Italian tomato pulp)	Ao-no-dokutsu	140g
Carbonara sauce	Carbonara (two kinds of cheese and richness of egg yolk)	Ao-no-dokutsu	140g
Congee	Fluffy cooked congee (rich flavor and taste)	V-mark value plus	250g