Appendix A

Companion DVD with selected animations

Selected animations from the results obtained in chapters 7 and 8 are included in the attached DVD. Hereafter we list the included animations:

- Two-dimensional simulations
  - Heaving airfoil at $St = 0.15$, $h_a = 0.30$, $Re = 1100$
  - Heaving airfoil at $St = 0.30$, $h_a = 0.15$, $Re = 1100$
  - Heaving airfoil at $St = 0.30$, $h_a = 0.35$, $Re = 1100$
  - Heaving airfoil at $St = 0.40$, $h_a = 0.40$, $Re = 1100$
  - Heaving airfoil at $St = 0.50$, $h_a = 0.20$, $Re = 1100$
  - Heaving airfoil at $St = 0.50$, $h_a = 0.30$, $Re = 1100$
  - Heaving airfoil at $St = 0.60$, $h_a = 0.10$, $Re = 1100$
  - Heaving airfoil at $St = 0.60$, $h_a = 0.40$, $Re = 1100$
  - Heaving airfoil at $St = 0.90$, $h_a = 0.45$, $Re = 1100$
  - Heaving airfoil at $St = 0.90$, $h_a = 0.375$, $Re = 1100$
  - Heaving airfoil at $St = 1.20$, $h_a = 0.60$, $Re = 1100$

  - Heaving-and-pitching airfoil at $St = 0.20$, $h_a = 0.40$, $\alpha_a = 5°$, $\varphi = 90°$, $Re = 1100$
  - Heaving-and-pitching airfoil at $St = 0.20$, $h_a = 1.00$, $\alpha_a = 10°$, $\varphi = 90°$, $Re = 1100$
  - Heaving-and-pitching airfoil at $St = 0.20$, $h_a = 1.00$, $\alpha_a = 20°$, $\varphi = 90°$, $Re = 1100$
  - Heaving-and-pitching airfoil at $St = 0.20$, $h_a = 0.40$, $\alpha_a = 30°$, $\varphi = 90°$, $Re = 1100$
  - Heaving-and-pitching airfoil at $St = 0.20$, $h_a = 0.60$, $\alpha_a = 40°$, $\varphi = 90°$, $Re = 1100$

  - Heaving-and-pitching airfoil at $St = 0.30$, $h_a = 1.00$, $\alpha_a = 5°$, $\varphi = 90°$, $Re = 1100$
  - Heaving-and-pitching airfoil at $St = 0.30$, $h_a = 1.40$, $\alpha_a = 15°$, $\varphi = 90°$, $Re = 1100$
  - Heaving-and-pitching airfoil at $St = 0.30$, $h_a = 1.00$, $\alpha_a = 25°$, $\varphi = 90°$, $Re = 1100$
  - Heaving-and-pitching airfoil at $St = 0.30$, $h_a = 1.20$, $\alpha_a = 30°$, $\varphi = 90°$, $Re = 1100$

- Heaving-and-pitching airfoil at $St = 0.30$, $h_a = 0.40$, $\alpha_a = 40°$, $\varphi = 90°$, $Re = 1100$

- Heaving-and-pitching airfoil at $St = 0.40$, $h_a = 0.40$, $\alpha_a = 5°$, $\varphi = 90°$, $Re = 1100$
- Heaving-and-pitching airfoil at $St = 0.40$, $h_a = 0.40$, $\alpha_a = 20°$, $\varphi = 90°$, $Re = 1100$
- Heaving-and-pitching airfoil at $St = 0.40$, $h_a = 1.00$, $\alpha_a = 20°$, $\varphi = 90°$, $Re = 1100$
- Heaving-and-pitching airfoil at $St = 0.40$, $h_a = 1.00$, $\alpha_a = 30°$, $\varphi = 90°$, $Re = 1100$
- Heaving-and-pitching airfoil at $St = 0.40$, $h_a = 2.00$, $\alpha_a = 50°$, $\varphi = 90°$, $Re = 1100$

- Heaving-and-pitching airfoil at $St = 0.25$, $h_a = 0.25$, $\alpha_a = 10°$, $\varphi = 85°$, $Re = 1100$
- Heaving-and-pitching airfoil at $St = 0.25$, $h_a = 0.25$, $\alpha_a = 10°$, $\varphi = 95°$, $Re = 1100$
- Heaving-and-pitching airfoil at $St = 0.25$, $h_a = 0.25$, $\alpha_a = 10°$, $\varphi = 105°$, $Re = 1100$

- Heaving NACA 2212 airfoil at $St = 0.30$, $h_a = 0.10$, $Re = 1100$
- Heaving NACA 4412 airfoil at $St = 0.30$, $h_a = 0.30$, $Re = 1100$
- Heaving NACA 6612 airfoil at $St = 0.30$, $h_a = 0.30$, $Re = 1100$
- Heaving SELIG S1223 airfoil at $St = 0.40$, $h_a = 0.10$, $Re = 1100$
- Heaving SELIG S1223 airfoil at $St = 0.40$, $h_a = 0.30$, $Re = 1100$

- Heaving flexible airfoil at $St = 0.30$, $h_a = 0.25$, $h_{flex} = 0.0$, $Re = 1100$
- Heaving flexible airfoil at $St = 0.30$, $h_a = 0.25$, $h_{flex} = 0.1$, $Re = 1100$
- Heaving flexible airfoil at $St = 0.30$, $h_a = 0.25$, $h_{flex} = 0.3$, $Re = 1100$
- Heaving flexible airfoil at $St = 0.30$, $h_a = 0.25$, $h_{flex} = 0.5$, $Re = 1100$

• Three-dimensional simulations

- Heaving wing at $St = 0.15$, $h_a = 0.075$, $Re = 500$
- Heaving wing at $St = 0.25$, $h_a = 0.25$, $Re = 500$
- Heaving wing at $St = 0.35$, $h_a = 0.35$, $Re = 500$
- Heaving wing at $St = 0.35$, $h_a = 0.175$, $Re = 500$
- Heaving wing at $St = 0.50$, $h_a = 0.25$, $Re = 500$

- Heaving-and-pitching wing at $St = 0.25$, $h_a = 0.15$, $\alpha_a = 20°$, $\varphi = 90°$, $Re = 500$

- Rolling wing (Root-flapping) at $St = 0.10$, $\phi = 12.5°$, $Re = 500$
- Rolling wing (Root-flapping) at $St = 0.38$, $\phi = 45.0°$, $Re = 500$

These and other simulations can be also viewed at the author's website:
http://www.dicat.unige.it/guerrero

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