Legend:
- System state
- (b) ATP concentration
- (d) Odometry path
- (f-h) Inter-beat intervals
- Training data
- Prediction
- Predicted fold bifurcation
- Predicted period-doubling bifurcation
- Initial UAV position

a *Experiment illustration*

O₂ ✗

Arabidopsis thaliana

b *Cellular energy depletion*

Relative fluorescence ratio (%)

Time (min)

c *Experiment illustration*

Obstacle B

P_s

Obstacle A

P_g

d *UAV obstacle avoidance*

Y Position (m)

X Position (m)

e *Experiment illustration*

(III) (II) (I)

0.5   2.5

E-4031 (μmol)

chick-heart aggregates

f *Beating chick-heart (I)*

IBI (s)

Beat number

g *Beating chick-heart (II)*

IBI (s)

Beat number

h *Beating chick-heart (III)*

IBI (s)

Beat number