Fish 'n' robots: not a take-out food

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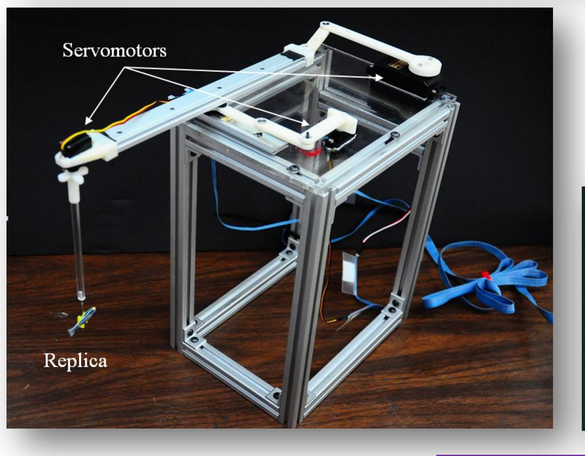
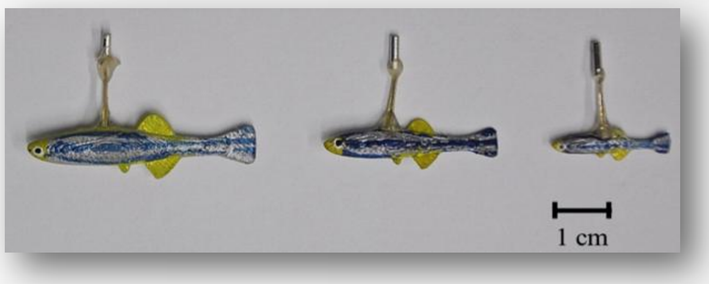
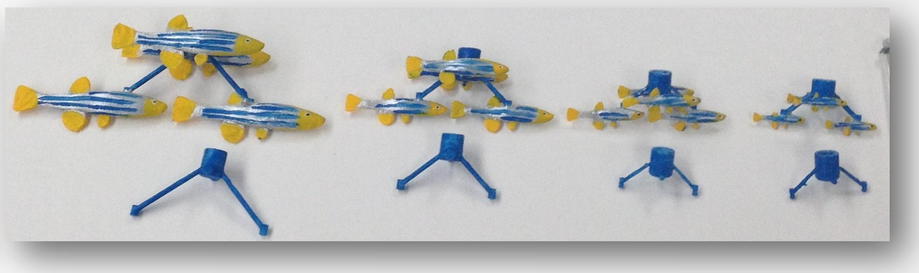


Robotics to aid animal behavior research

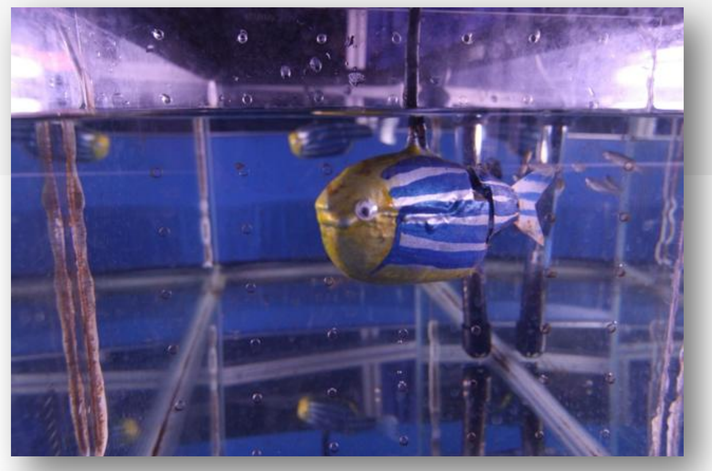
- Remotely-controlled biologically-inspired robotic fish of various sizes and capabilities
- More consistent animal response
- Increased throughput of experiments by decreasing the number of animals required
- Larger degree of control through 3D stimuli

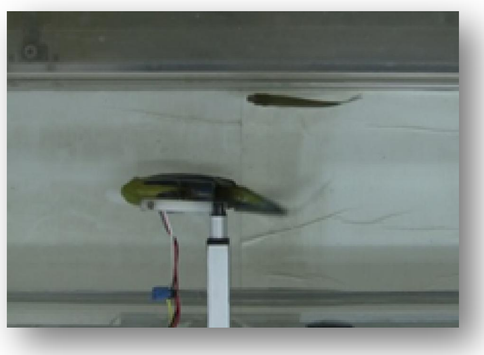




Biologically-inspired robots for hypothesis-driven research on animal behavior

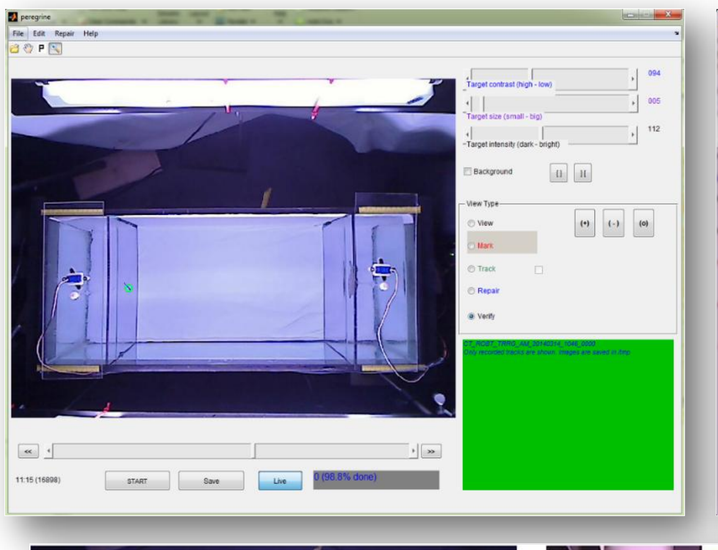
- Studying visual and flow cues in social interactions
- Closing the loop on live fish behavior
- Robotics-based experimental paradigm for measuring animal response to predators

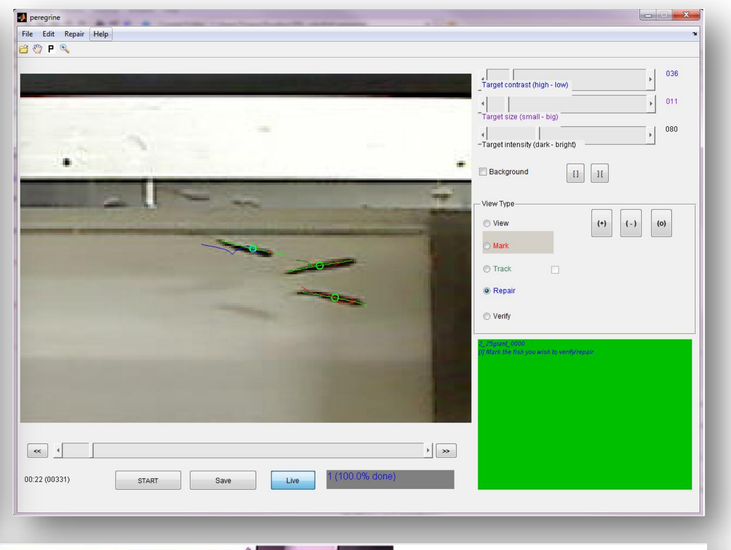


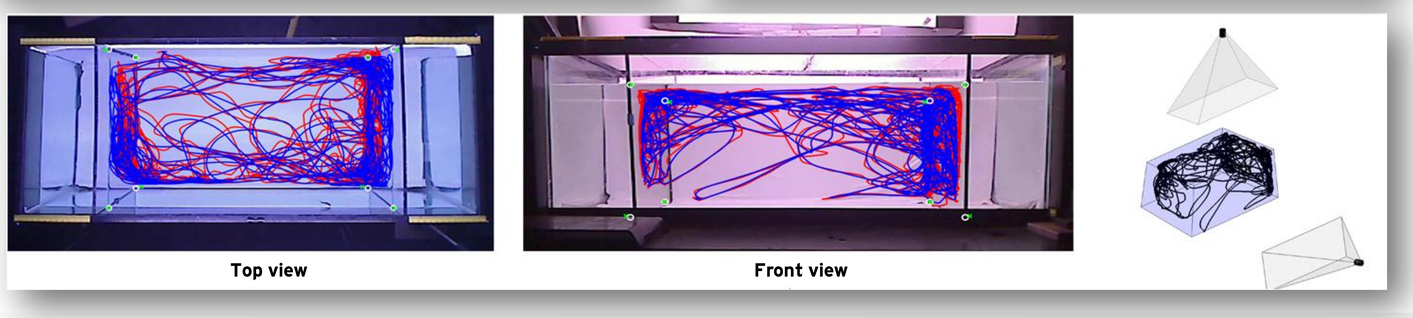


Automatic tracking system

- Kalman filtering to estimate 2D position
- Shape tracking
- 3D tracking by merging synchronized videos from different fields of view
- Resolution of occlusions with minimal manual repairs
- Post-processing of fish trajectories to score locomotory patterns







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