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U-RME : Underwater Refined Motion Estimation in hazy, cluttered and dynamic environments

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Objective :

To propose a motion estimation method for fish by exploiting contour information under complex marine environment.

Importance :

Appearance information of objects alone is not sufficient for such low quality videos. Motion information can provide important clue as fish is a highly deformable object

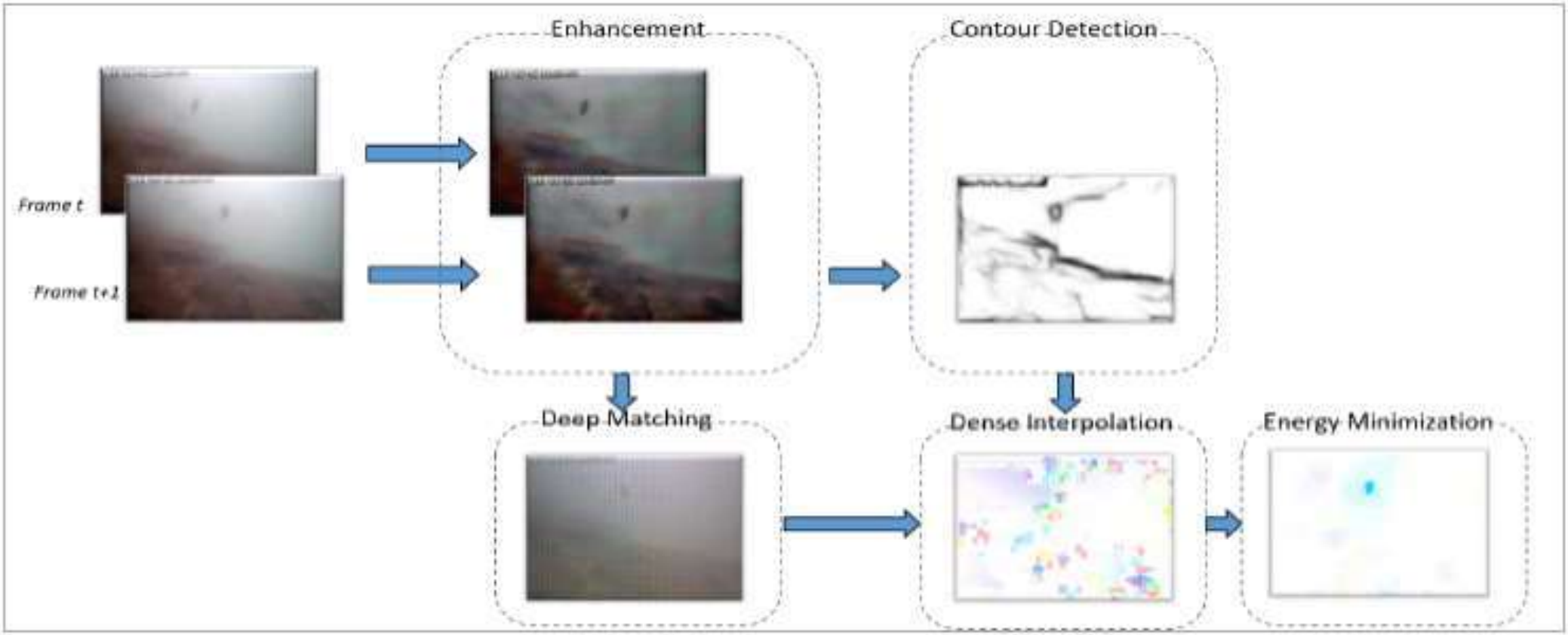

Fig. 1. Pipeline of the proposed flow method

Results

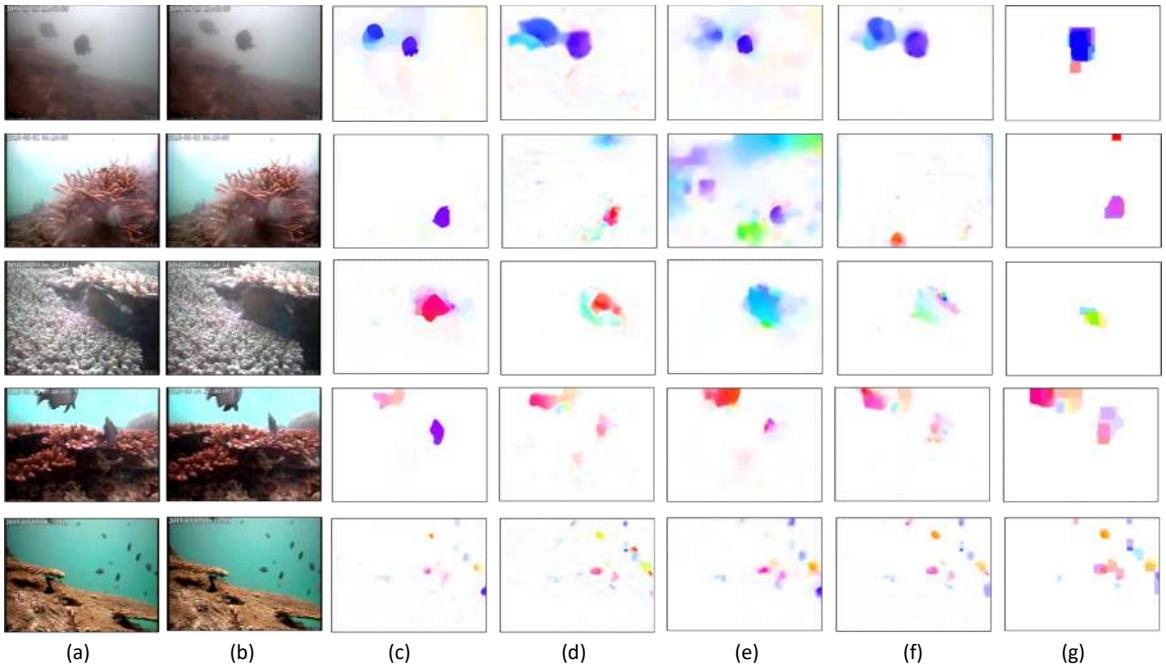

Fig 2. Success Cases : (a) Frame *t* (b) Frame *t*+1 (c) Proposed (d) DD Flow (e) EPIC Flow (f) LDOF (g) SIFT Flow

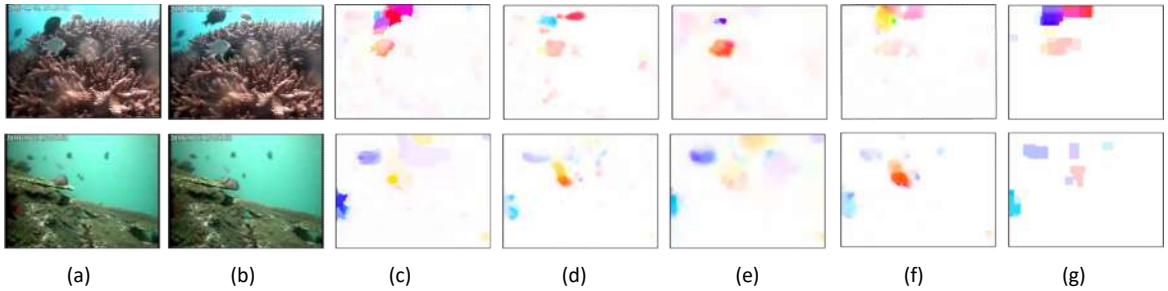

Fig 3. Failure Cases : (a) Frame *t* (b) Frame *t*+1 (c) Proposed (d) DD Flow (e) EPIC Flow (f) LDOF (g) SIFT Flow

Future Scope

- The proposed flow estimation technique can be further extended to segment the objects in challenging environment like hazy, cluttered and dynamic environments.
- Proposed method can be expanded to offer a wide range of applications in ecology and ecosystem management, such as stock assessment, species conservation and to continuously track and accurately predict biological responses as global climate change accelerates.