

Internship Offer: 3D reconstruction from event cameras

Understanding how butterflies adapt their flight to environmental conditions (wind and turbulence, confined geometries, gravity level) has both fundamental entomology importance and technical relevance for biomimetically designing the aerodynamically efficient drones/planes. Existing research studies rely on high speed RGB cameras for data acquisition which is prohibitively slow and inefficient. Event-based cameras, on the other hand, can be a powerful alternative, due to their extremely high temporal dynamics and their frugality both in terms of power consumption and data storage. However, they are significantly less informative than RGB cameras, and require the development of dedicated algorithms, beyond those currently used for frame image processing. In this project, we propose to combine event-based cameras acquisition efficiency with computer vision to reconstruct the 3D dynamics of butterflies flight directly using the asynchronous stream of events.

Candidate profile

- Currently pursuing a Master's or engineering degree in computer science, computer vision, AI, or a related field.
- Solid programming skills (Python) and experience with a deep learning framework (PyTorch or TensorFlow).
- Autonomy, rigor and good communication skills.

Practical information

- **Duration:** 6 months
- **Start date:** February 2027
- **Location:** Lyon (LIRIS laboratory at Ecole Centrale de Lyon)
- **Supervision:** [Shaifali Parashar](#)
- **Compensation:** around 500 euros per month
- **Application:** send a CV, master transcripts and a letter of recommendation to shaifali.parashar@gmail.com.