

Supplementary Materials: Application of Digital Particle Image Velocimetry to Insect Motion: Measurement of Upward, Downward, and Lateral Honeybee Traffic

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1. Supplementary Honeybee Traffic Videos

These are the videos that we used in a preliminary experiment to estimate if the system can distinguish four qualitative levels (none, low, medium, and high) of honeybee traffic.

1. **NT_Vid.mp4**. This video is captured by a BeePi monitor placed on top of a Langstroth beehive that consists of three deep supers. It is qualitatively classified as a no traffic (NT) video.
2. **LT_Vid.mp4**. This video is captured by a BeePi monitor placed on top of a Langstroth beehive that consists of three deep supers. It is qualitatively classified as a low traffic (LT) video.
3. **MT_Vid.mp4**. This video is captured a BeePi monitor placed on top of a Langstroth beehive that consists of one deep super. It is qualitatively classified as a medium traffic (MT) video.
4. **HT_Vid.mp4**. This video is captured a BeePi monitor placed on top of a Langstroth beehive that consists of one deep super. It is qualitatively classified as a high traffic (HT) video.

2. Human Bee Motion Counts for Four Honeybee Traffic Videos

The supplementary materials include four CSV files that contain human bee motion counts for the four original videos.

1. The file **NT_Vid_hbmc.csv** contains frame by frame bee motion counts done by a human evaluator for the video **NT_Vid.mp4**.
2. The file **LT_Vid_hbmc.csv** contains frame by frame bee motion counts done by a human evaluator for the video **LT_Vid.mp4**.
3. The file **MT_Vid_hbmc.csv** contains frame by frame bee motion counts done by a human evaluator for the video **MT_Vid.mp4**.
4. The file **HT_Vid_hbmc.csv** contains frame by frame bee motion counts done by a human evaluator for the video **HT_Vid.mp4**.