Bee Communication Visualization

Concept & Data Source
- Visualization of honey bee communication through dance patterns and social interactions
- Three-layer installation revealing dance locations, food sources, and emergent patterns
- Data source: https://zenodo.org/records/7928121
  - Berlin2019_waggle_phases.csv
  - Berlin2019_followers.csv
  - Berlin2019_feeder_experiment_log.csv
- Maps relationship between dance locations, watching bees, and food sources

Physical Construction

Materials:
- Translucent Layers:
  - 3 Yupo sheets (153 gsm, 24" x 36")
  - 3 foam core boards (24" x 36")
  - Grafix Drafting Film Matte (24" x 36")
- Frame Assembly:
  - Simple frame (24" x 36")
  - Mounting hardware
  - Archival double-sided tape
- Layer Spacing:
  - 1/2" gaps between layers
  - Lightbox at back
  - Drafting film diffuser

Data Integration

Layer 1 (Back) - The Conversation:
- Precise holes mapping dance coordinates (x_median, y_median)
- Smaller holes indicating follower positions
- Shows communication locations within hive

Layer 2 (Middle) - The Message:
- Larger organic openings representing food sources
- Maps actual destinations being communicated

Layer 3 (Front) - The Pattern:
- Averaged figure-8 pattern showing typical dance movement
- Distance rings displaying common communication ranges
- Reveals emergent communication patterns

Production Process

Data Processing:
- Coordinate extraction and processing
- Vector file creation for each layer
- Pattern testing on spare Yupo sheets
- Light transmission calibration
- Hole size optimization

Assembly Procedure:
1. Laser cutting of final Yupo sheets
2. Strategic tape placement avoiding data points
3. Layer mounting to foam core
4. Frame assembly with proper spacing
5. Lightbox and diffuser installation