

# Interaction Design Case Study - 1

## Literal and Stylised Representations

# Ethernet Traffic representations (Literal)

The image displays a screenshot of the Wireshark network protocol analyzer interface, showing several windows used for traffic analysis:

- Protocol Explorer:** Shows a tree view of captured protocols, including Ethernet II, Internet Protocol Version 4, and Hypertext Transfer Protocol.
- Packet Size Distribution (Global):** A 3D pie chart showing the distribution of packet sizes. The legend indicates categories such as <math>0-64</math>, <math>65-127</math>, <math>128-255</math>, <math>256-511</math>, <math>512-1023</math>, <math>1024-1537</math>, and <math>1538-65535</math>.
- Utilization (bits):** A line graph showing average utilization in bits per second over time. The y-axis ranges from 0 to 1,200 Mbps.
- Project Status:** A table providing summary statistics for the capture session.

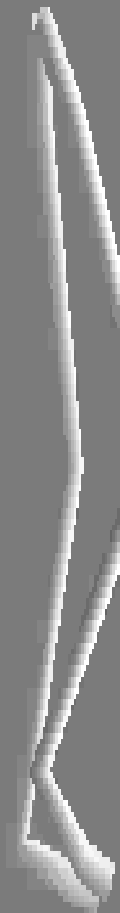
Project Name:	no filter enabled
Capture packets:	0
Packets captured:	1,294
Packets lost:	0
Packets accepted:	1,294
Packets rejected:	0
Buffer usage:	442 KB

# Live Wire (Natalie Jeremijenko, artist-in-residence Xerox PARC) – Stylised representation of Ethernet traffic

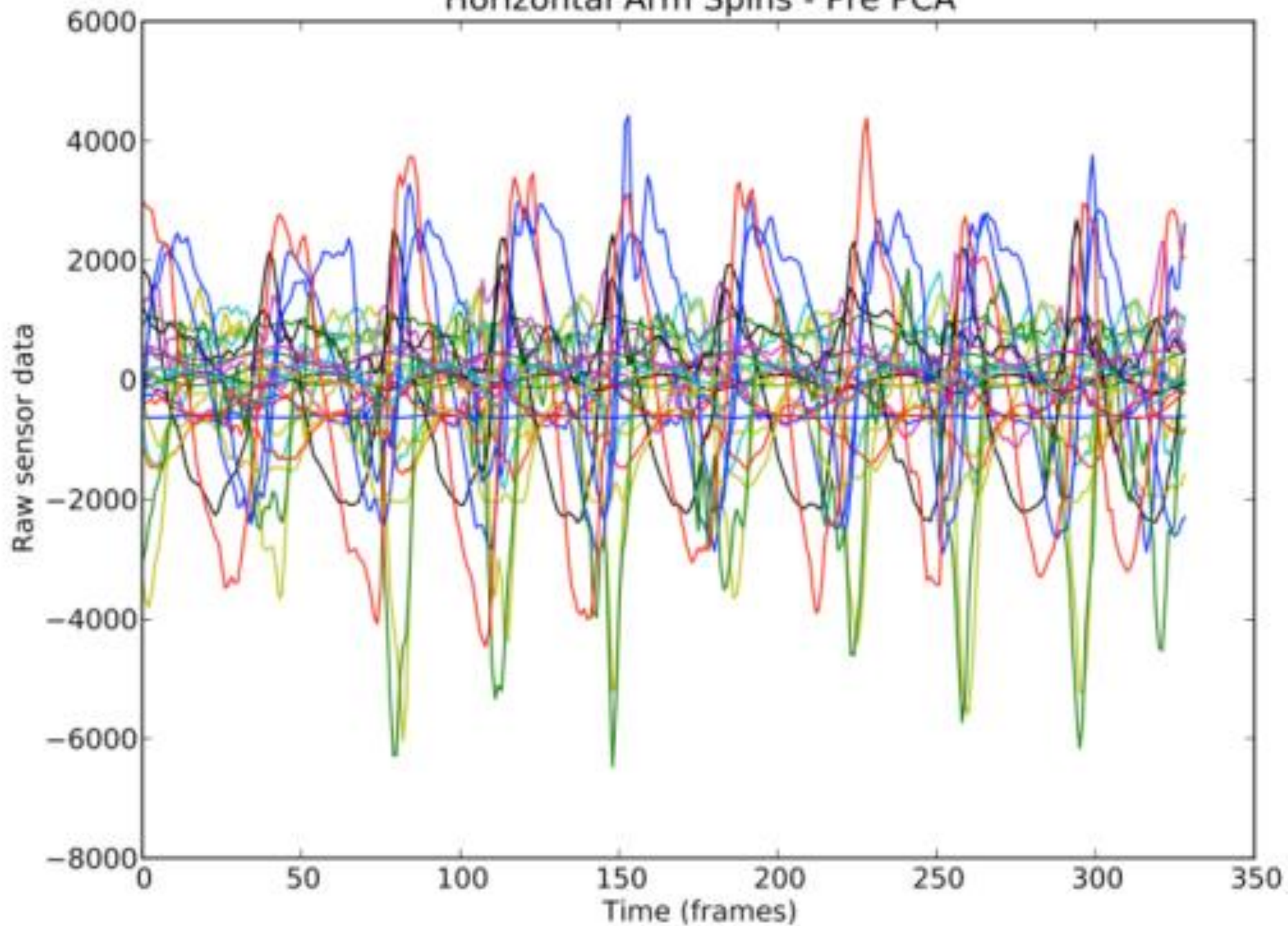


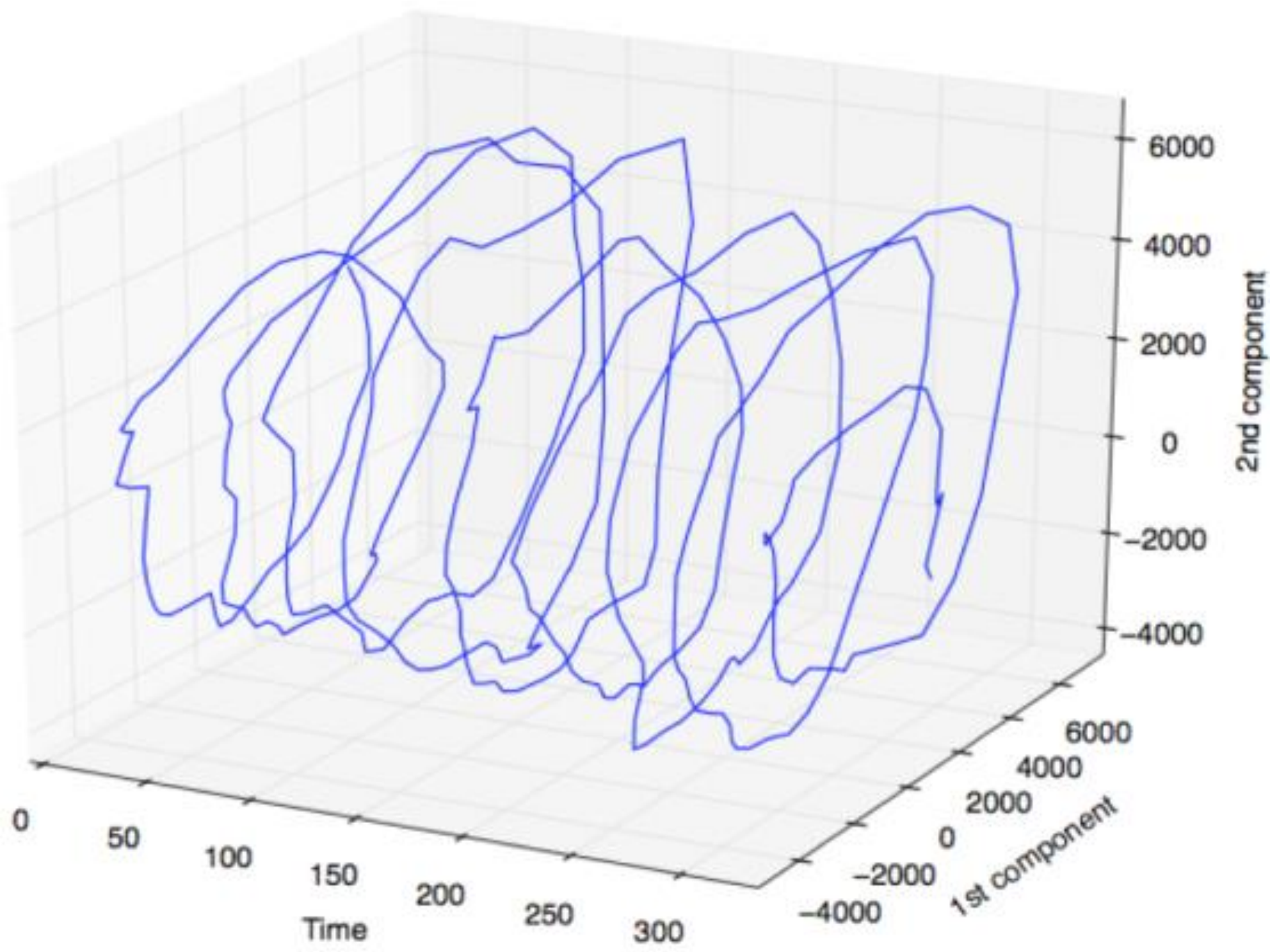
- Plastic cord hangs from a small electric motor mounted on the ceiling
- Motor is electrically connected to the Ethernet network
- Each passing packet of information causes a tiny twitch in the motor, which wiggles the wire in proportion to the amount of traffic on the net

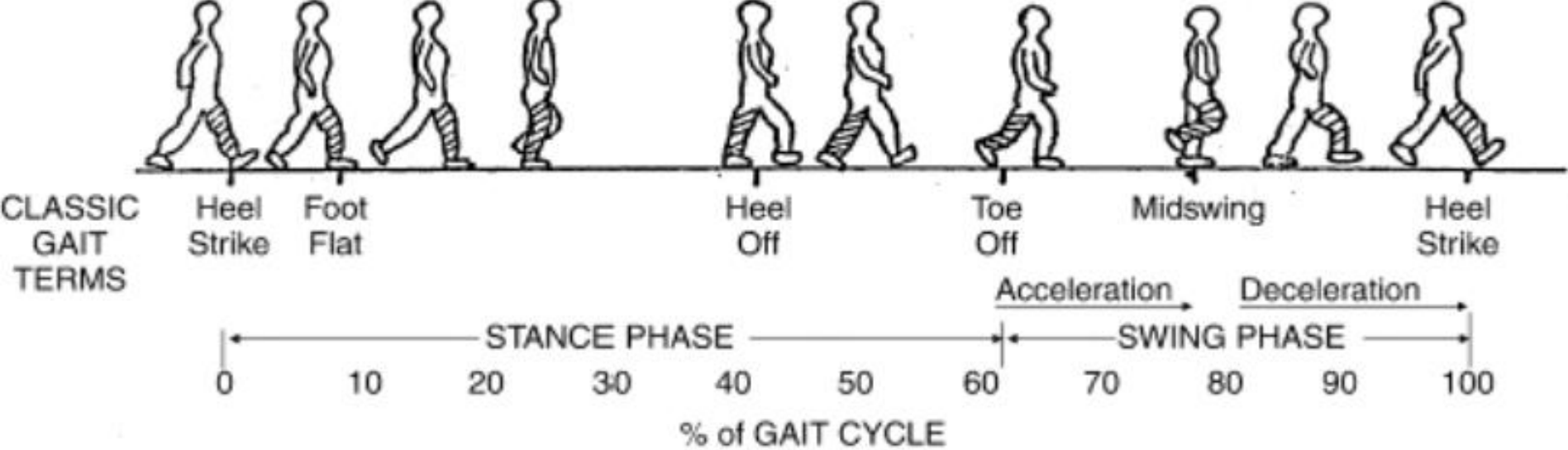
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- Focal and Peripheral attention
  - Detailed and Abstracted representations
  - Intended audience: technical / non-technical



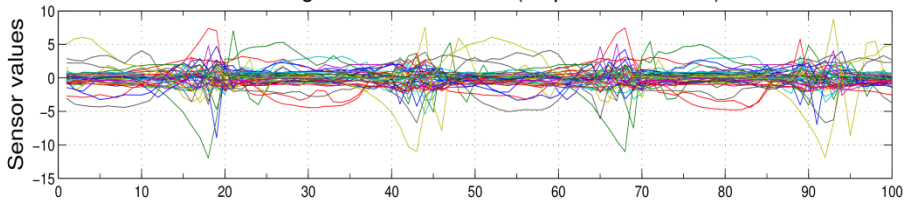
Horizontal Arm Spins - Pre PCA



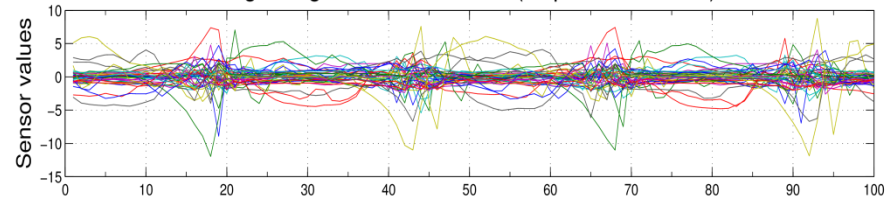




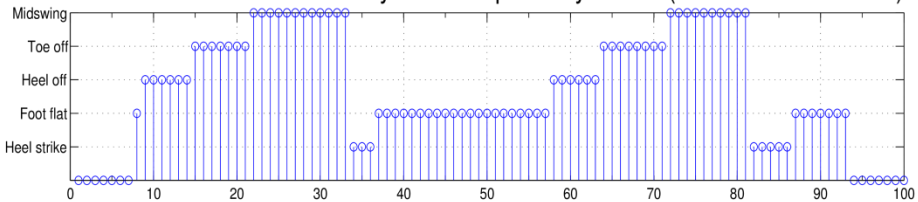
Left Leg Phase Detections (Capture data M19)



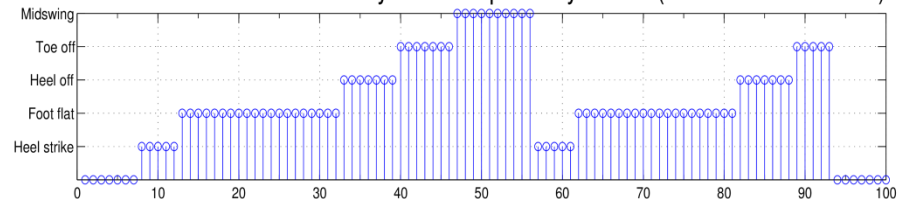
Right Leg Phase Detections (Capture data M19)



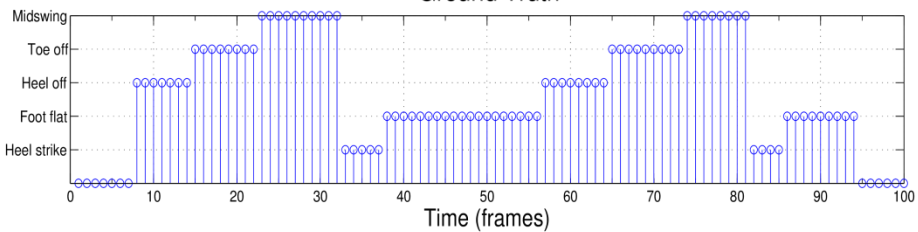
Detected Phases – Sensitivity: 89.5% Specificity 97.4% (Tolerance  $\pm 0$  frames)



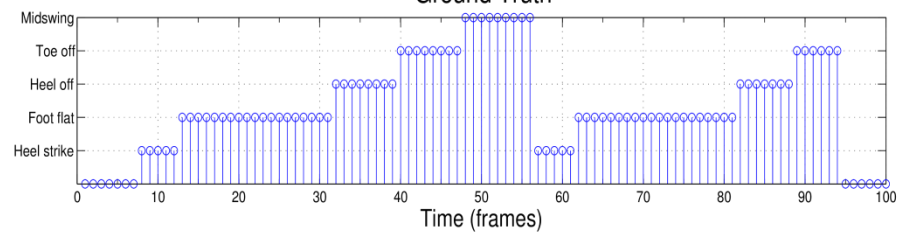
Detected Phases – Sensitivity: 97.7% Specificity 99.4% (Tolerance  $\pm 0$  frames)



Ground Truth



Ground Truth





# Music from Motion

- Category : Artistic
- Requirements: Wearable, unobtrusive, free movement, 3-D motion in real-time, instantaneous sound response (msec.)
- Users: Dancer/choreographer; the audience as part of a theatre performance
- Sensors: 3-D Acc'meter, gyros, magnetometer
- Actuators: sound sequences mediated by movement
- Data Analysis: Calculate orientation in 3-D space from sensor data; Sensor data: 512Hz, Quaternion angles: 256Hz
- Wireless protocol: 2.4GHz Zigbee radio: 150kbits/s; TDMA protocol: 128Hz update rate with 12 devices; 64 Hz update rate with 24 devices.

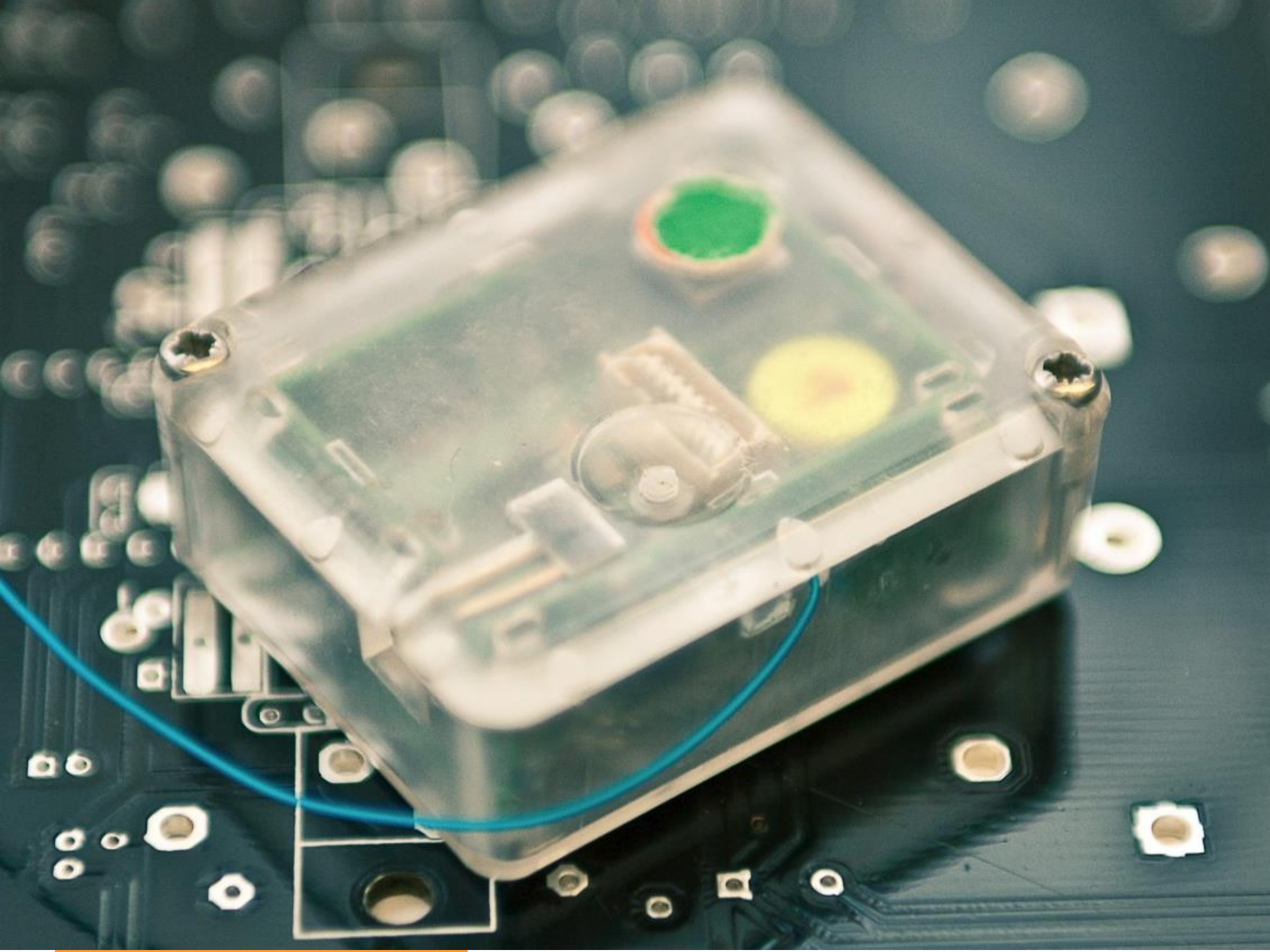


KINECT  
for XBOX 360

# Requirements for motion capture

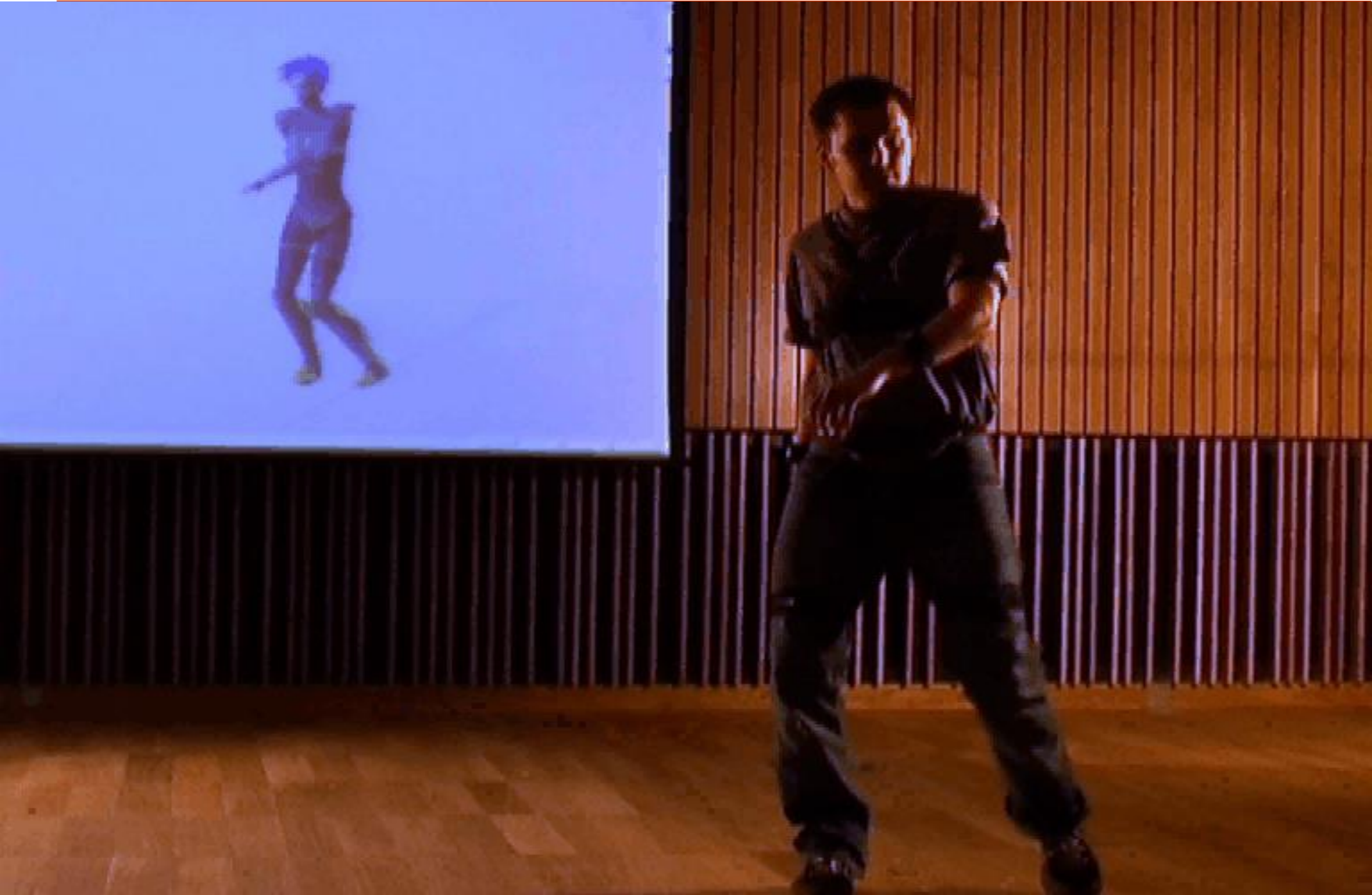
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- Capture, Analyse and Understand Motion
- Fully wireless
- No infrastructure (i.e. camera(s))
- Real-Time and Interactive
- Easy to use
- Banalise the technology
- Democratisise its usage





Video at [www.specknet.org](http://www.specknet.org)



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