



Computer Vision Video Content Analytics for Marketing Intelligence

Teddy Huang, PhD

Guest Researcher
California Institute of Technology
Wednesday, August 14, 2019

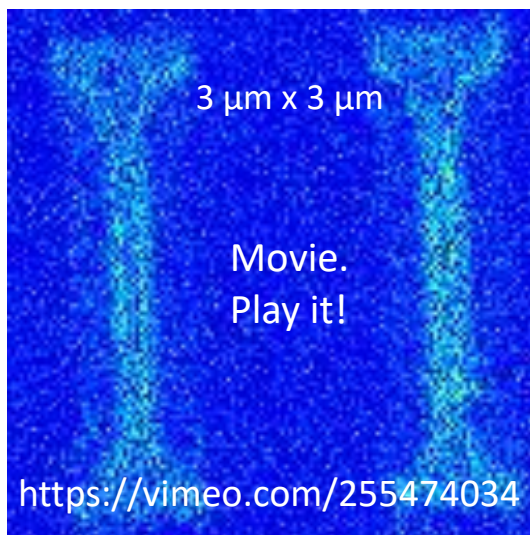
- Marketing data:
 - Impressive
 - Exaggerative
 - Deceptive
 - Massive
- Truth for:
 - Rational purchasing
 - Intelligent product development
- Computer vision:
 - Reveal the truth



<https://www.bilibili.com/video/av23468710?from=search&seid=14946528699051298221>

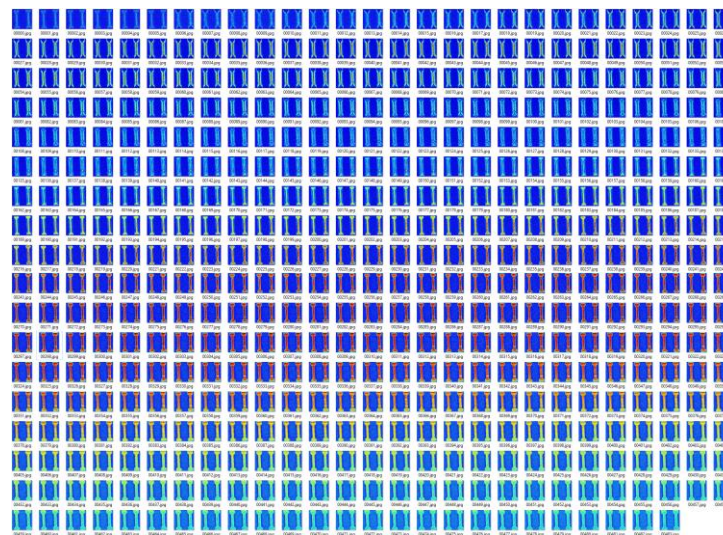
- Performance of two devices on the same chip
- From a video to a collection of frames, to a data cube

Marketing Video (18 s, 2.5 MB)



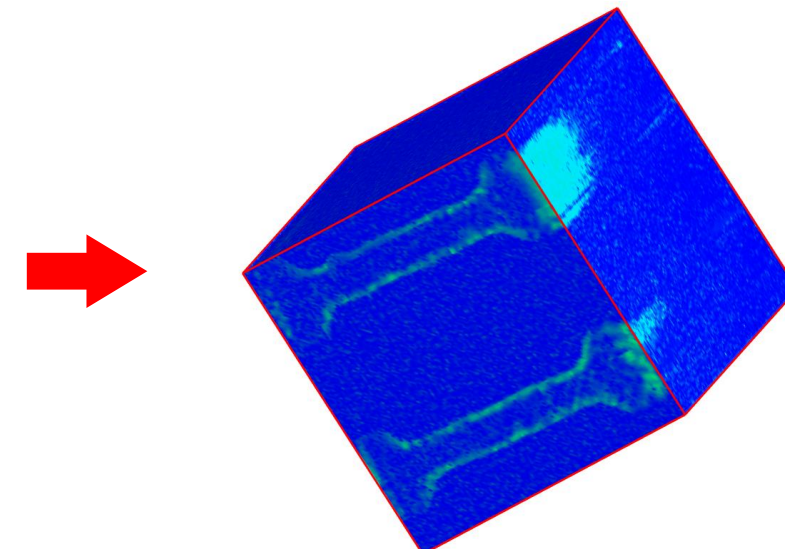
Generally, > 100s of MB and messy

512 Extracted Frames, 7.1 MB



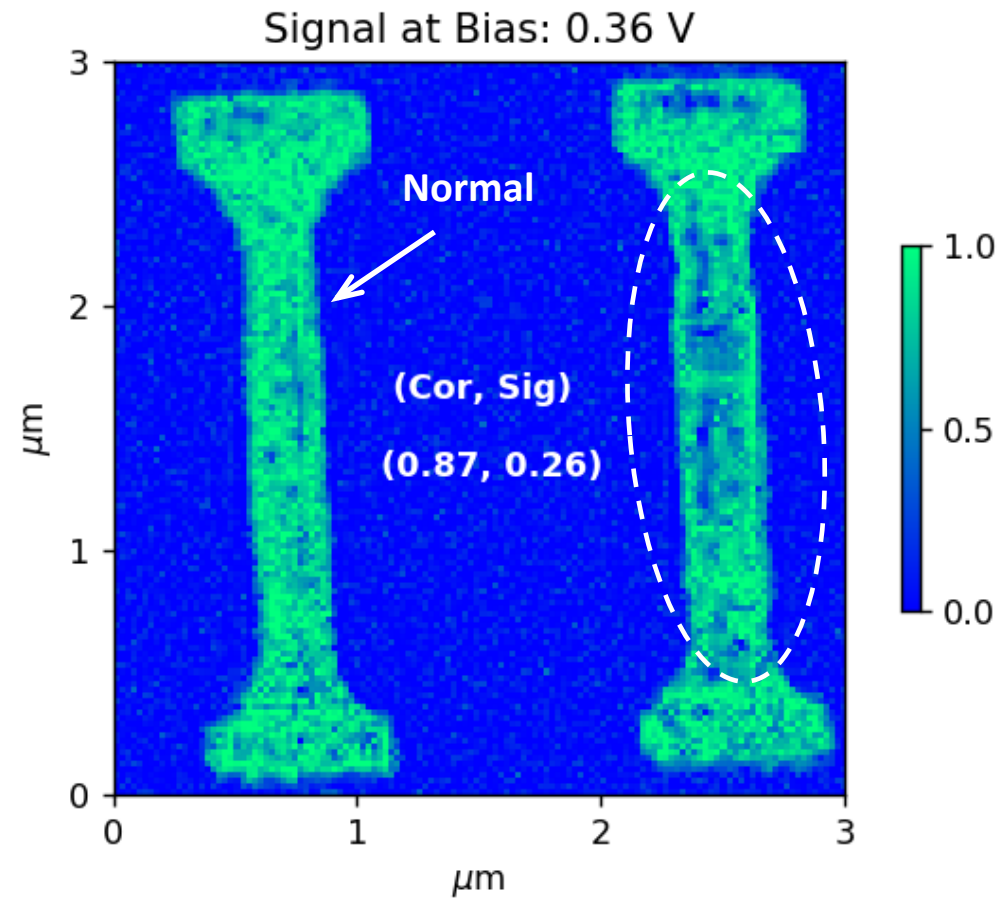
Removed 28 trailing frames

Data Cube: 128 x 128 x 484, 61 MB

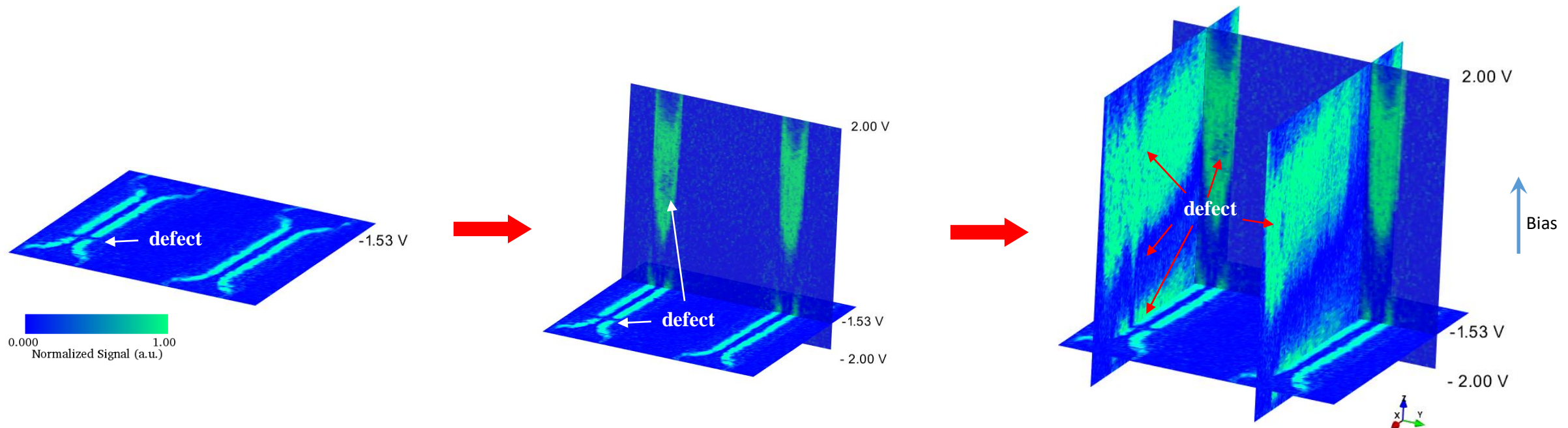


Easily get to GB level after interpolation

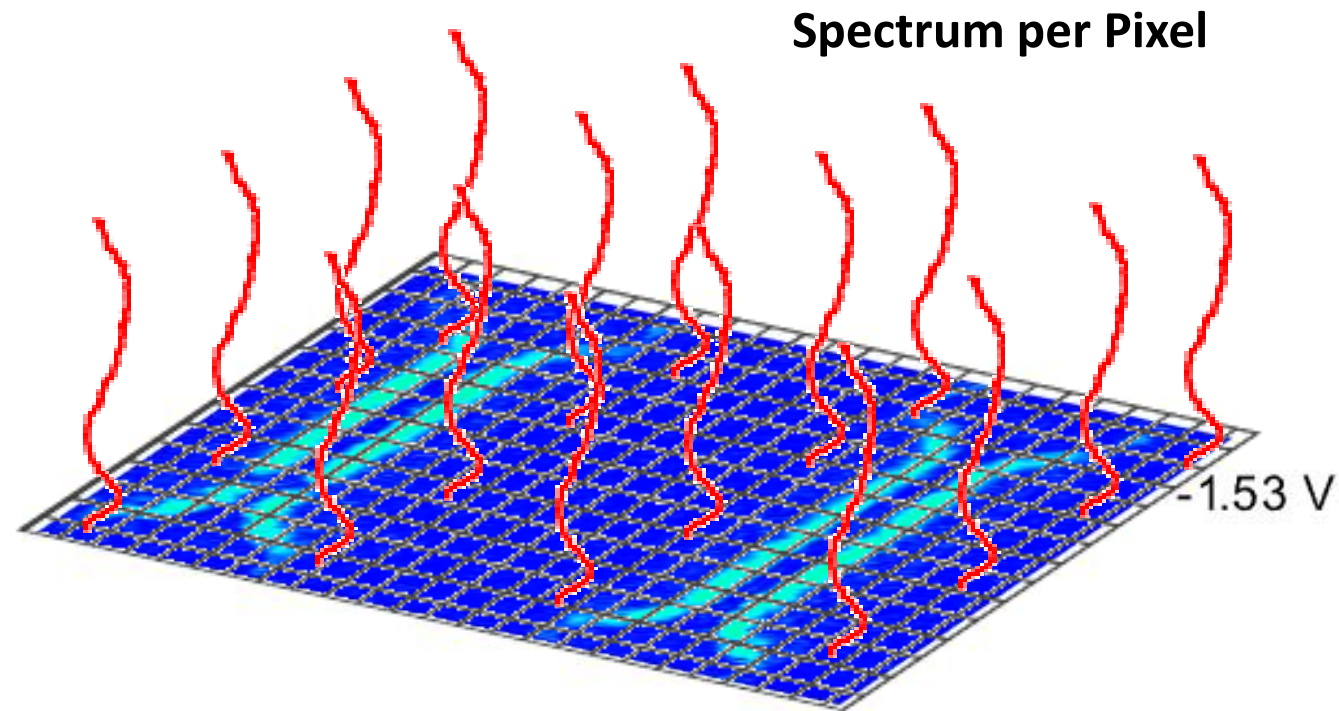
- Object detection and feature correlation for failure analysis



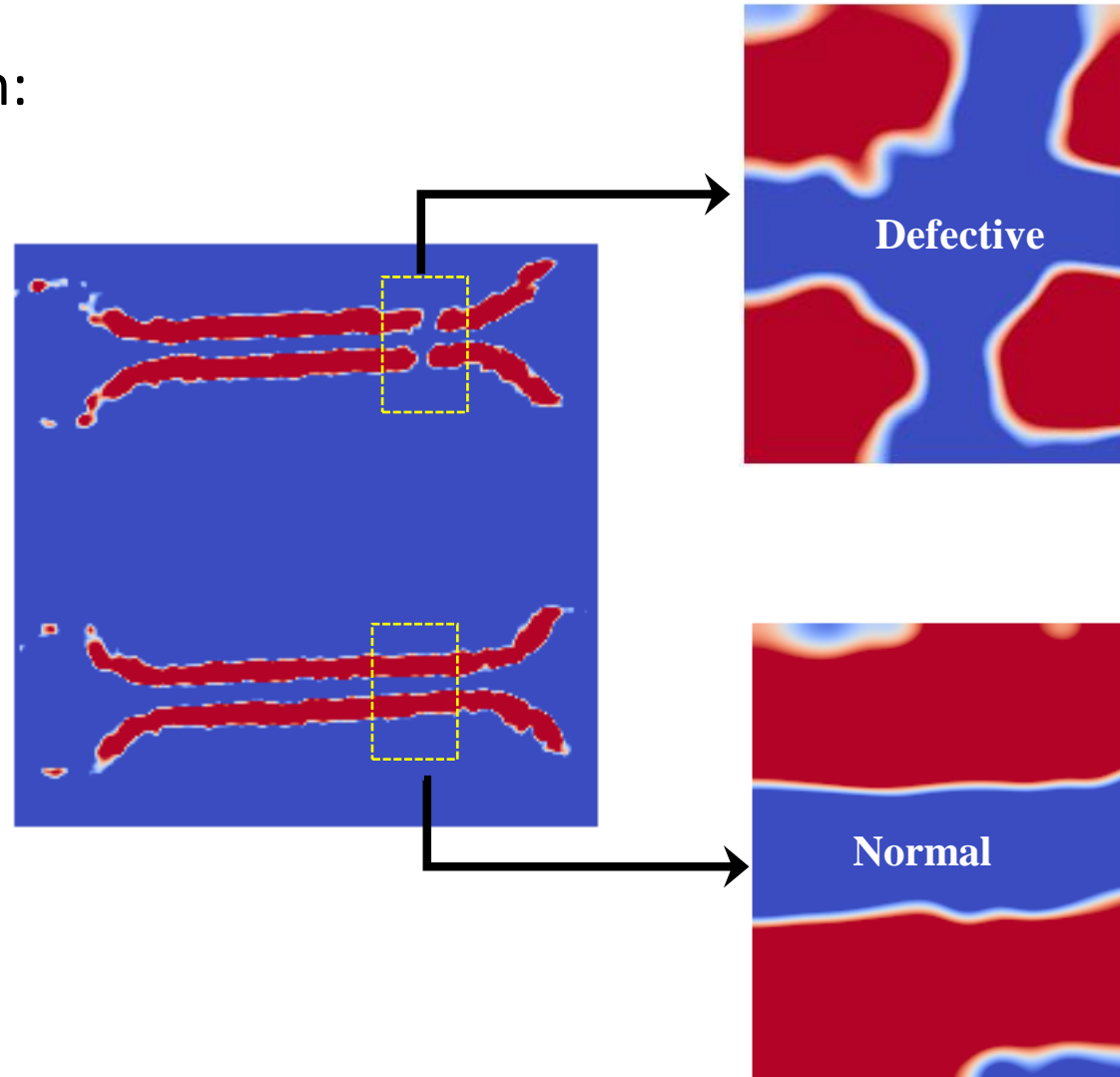
- Data depth profiling along any angle
- Spatial segmentation



- Each pixel contains a spectrum

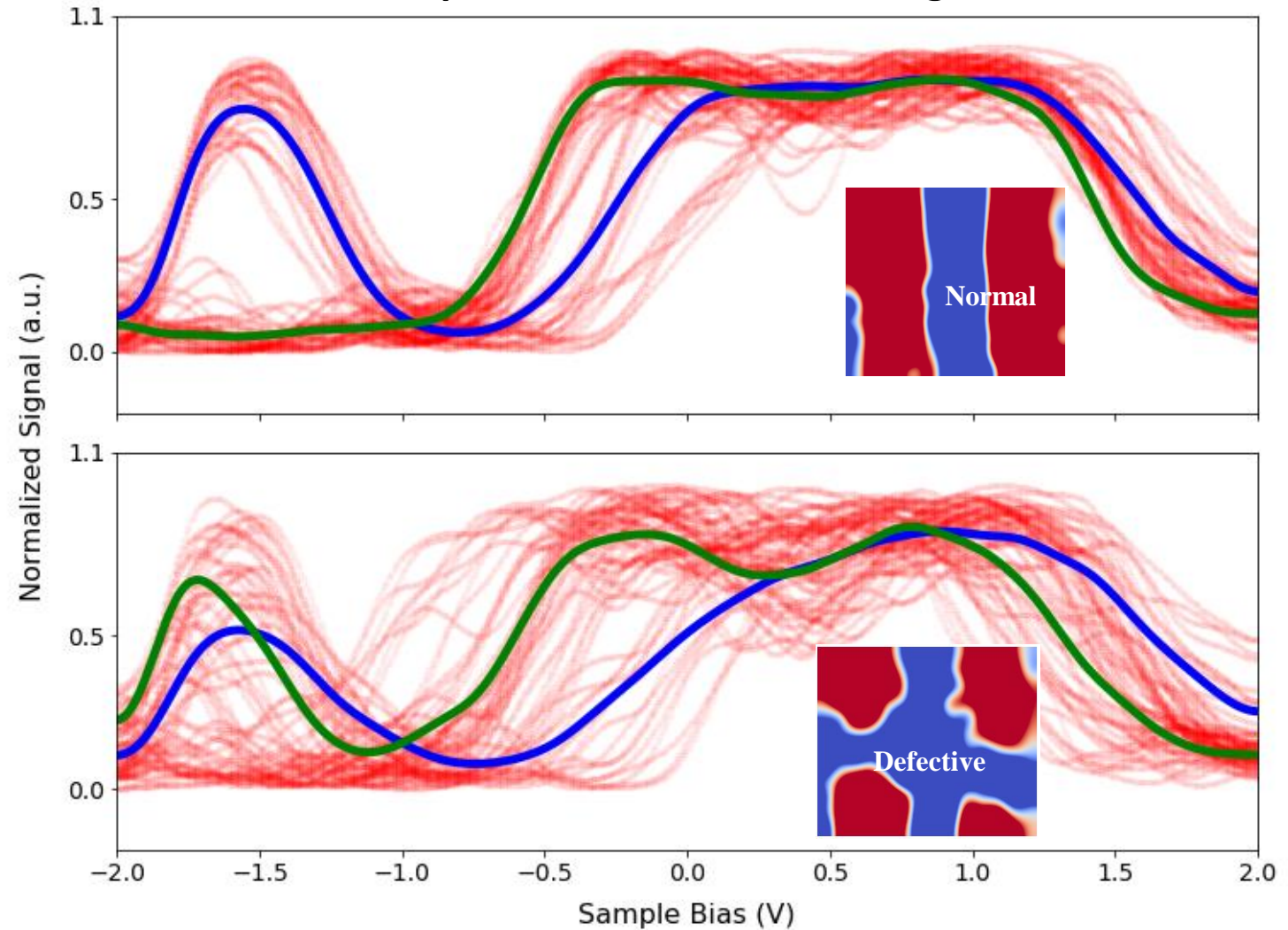


- Statistical representation:
 - Density plot



64 Point Spectra from the Same Region

- Density plot:
 - Clustering
 - Classification



Summary

- ▶ Develop tools to see the insights of marketing data
- ▶ Video content analytics: applies machine learning strategies to
 - ▶ reveal the truth behind ads
 - ▶ help customers for rational purchasing
 - ▶ help competitors to adjust product strategies