

# **Elements of IM System**

## **PROCESSING**

# PROCESSING

RESPONSIBLE FOR:

- EVALUATING AND ADJUSTING INPUT(S) DATA

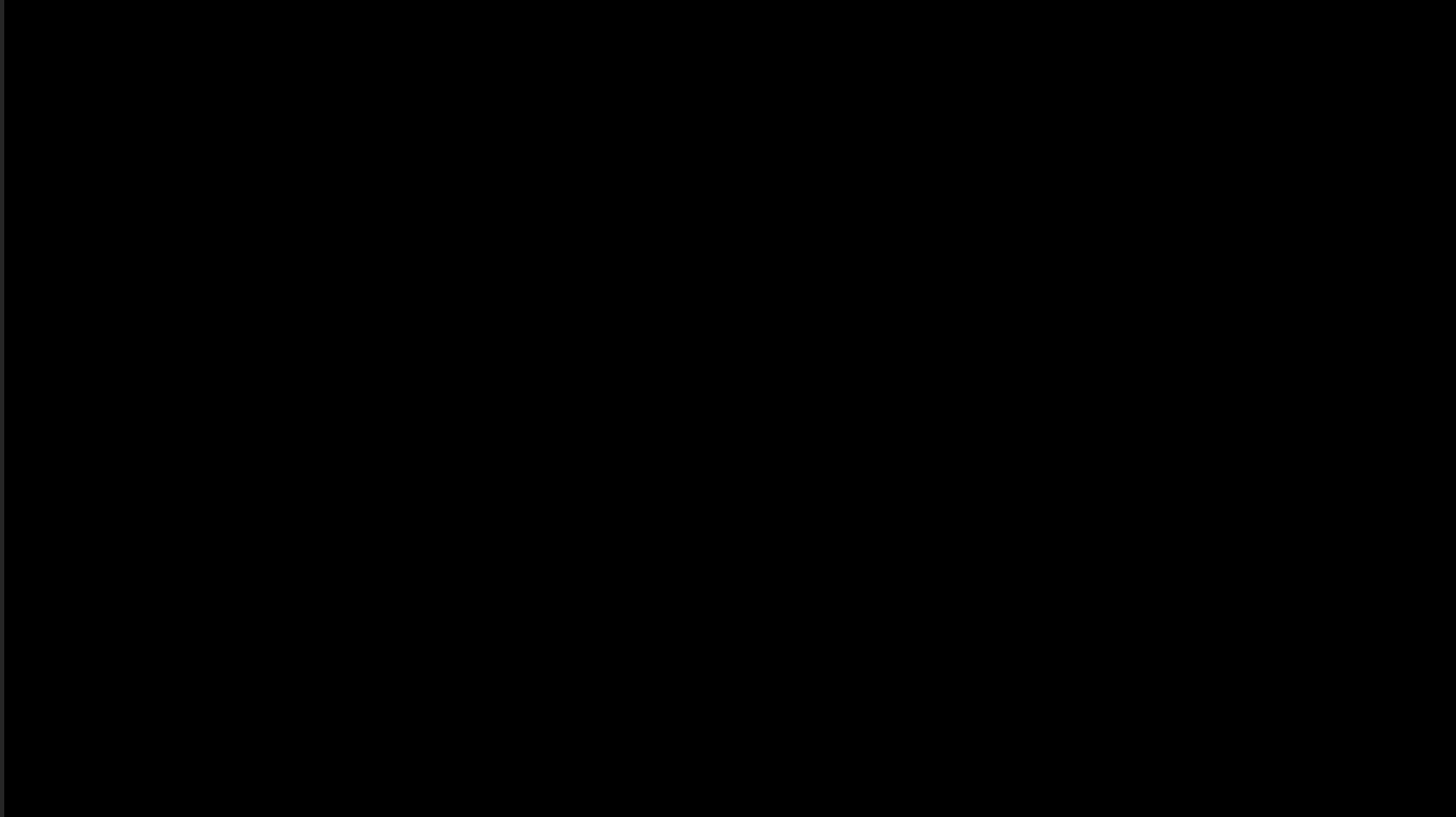
- COMPUTATIONAL TRANSFORMATIONS

FOR INTERFACING INPUT(S) DATA WITH OTHER COMPONENTS:

PROCEDURES, FUNCTIONS, CLASSES, OBJECTS...

- ADJUSTING THE PROCESSED DATA FOR THE OUTPUT(S)

**SOME EXAMPLES**



David Bowen - 2014 - Cloud Piano

Parametrized greyscale values from video image map articulate robotic arms - intensity.



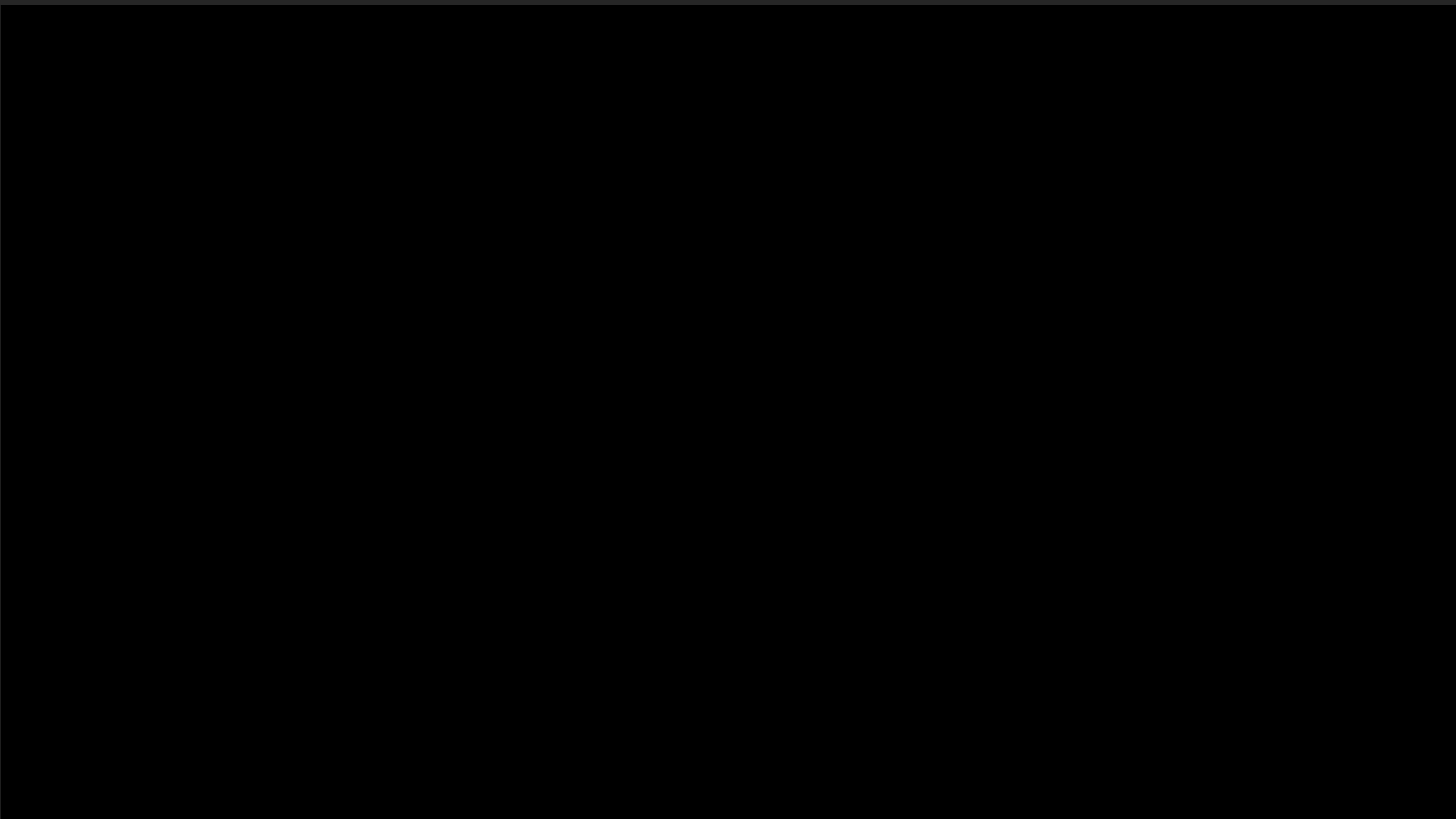
Daito Manabe - 2009 - Face Visualizer

Amplitude transcoded into several channels of output electric current according to pitch.



**Shinseungback Kimyonghun - 2012 - Cloud Face**

**CV software (Processing) captures 'faces' in the camera feed.**



Kenichi Okada - 2010 - Peeping Hole

CV: Single eye tracking, Zone selection.

# **Eyecode**

Interactive Installation

Documentation: 00'58"

**Golan Levin**

2007

Golan Levin - 2007 - Eyecode

CV: Face recognition, Eye tracking, Selection, Scaling, Sequencing.



# Portrait On The Fly

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C. Sommerer & L. Mignonneau - 2015 - Portrait on the Fly

Random fly movement (animation), organized by CV (face recognition and tracking, contours),  
mimics natural movement.

# TAKEAWAYS

# KEY FACTORS

- INTEGRATION:

WITHIN THE EXECUTING HARDWARE AND THE WHOLE SYSTEM

- **SPEED**

- SCALABILITY: EXPANSION OR REDUCTION

- LEGIBILITY: FOR FURTHER EDITING AND UPGRADING

- COMPATIBILITY: FWD AND BWD

# **SPEED FACTORS**

- **HARDWARE USED: SLOWEST COMPONENT**
  - **PROGRAMMING LANGUAGE(S)**
- **PROGRAMMING SKILLS, LIBRARIES, TECHNIQUES AND SOLUTIONS**

# HARDWARE

- COMPUTER SYSTEMS:

SoC, MOBILE, TABLET, PC, WS, FARMS, CLUSTERS, LS INFRASTRUCTURES, SC

- SINGLE-BOARD MICROCONTROLLERS:

LARGE VARIETY

- I/O DEVICES:

LARGE VARIETY OF SENSORS, MOTORS, ACTUATORS,  
INTEGRATED: KINECT, LEAPMOTION, INTEL REALSENSE,  
CUSTOM BUILD...

# SOFTWARE

- PROGRAMMING LANGUAGES:

C++, C#, JAVA, PYTHON, GO, FFMPEG, OPENGL...

- PL IMPLEMENTATIONS AND SCRIPTING LANGUAGES:

OF (C++), JAVASCRIPT, PROCESSING, P5.JS, NODE.JS, SUPERCOLIDER (C++)...

- VISUAL OR DATA-FLOW PROGRAMMING ENVIRONMENTS:

TOUCHDESIGNER (PY), VVVV (DELPHI+C#+.NET), PUREDATA, MAX/MSP,...

# ONLINE COURSES AND TUTORIALS

DANIEL SHIFFMAN:

- PROGRAMMING FROM A TO Z
- THE NATURE OF CODE
- THE CODING TRAIN: VARIOUS YT PLAYLISTS

# **ONLINE RESOURCES LINKS @ OSS**





