The Extended Now workshop:

Class Resource links for working with live media and sensors

Software:

Two excellent tools for easily integrating live & recorded media, and many types of sensor data are **Isadora** (created by Mark Coniglio), and **Max-MSP**.

Typically most projects involving physical computing will also need code written for the microcontroller and its interface with a computer. Processing, Open Frameworks and the Arduino IDE are three of the main tools in this regard.

Patching environments:

    Isadora

    A substantially updated new version is about to be released (early June 2014). Until then download the latest version public beta at http://troikatronix.com/download/isadora-pre-releases/
    And the manual is here: http://troikatronix.com/files/isadora-manual.pdf
    Tutorials are at http://www.youtube.com/user/troikatronix
    There are academic licenses available, and, the demo version is fully functional – except you can't save.

    Max-MSP
    http://cycling74.com/downloads/
    There are also academic licenses available. The demo version is fully functional for 30 days.

Code based:

    Processing
    Open source creative coding environment based on Java
    https://processing.org/download/

    Open Frameworks
    A c++ based set of open source frameworks for creative coding
    http://openframeworks.cc/about/

    Arduino IDE
    The development environment for Arduino and similar microcontrollers
    http://arduino.cc/en/Main/Software

    TeensyDuino
    The arduino environment add-on for working with the Teensy microcontrollers
    http://www.pjrc.com/teensy/td_download.html

Plugins, drivers, and utilities:

    Matrox triple head drivers (to use the double head or triple head on your own machine):
    http://www.matrox.com/graphics/en/support/drivers/download/?id=504

    Osculator (for OSC / midi translation)
    http://www.osculator.net/download/

Touch OSC (for iPhone and pad)
http://hexler.net/software/touchosc

Syphon http://syphon.v002.info/ - download syphon for quartz, open in quartz composer and republish outputs or refer to actor in class file download.

Videoglide: http://www.echofx.com/videoglide.html to allow use of cheap PC USB capture devices on the mac (such as the pinnacle dazzle DVC 100) to easily connect and digitize older analog video sources like pinhole cameras.

NIMate - http://www.ni-mate.com/download/

Video compression: Use photo jpg or apple pro-res codecs
QuickTime 7
Apple Compressor (49.99 or free w/ FCP)
Adobe Media Encoder (free with adobe apps_
Magic Bullet Grinder
Mpeg streamclip (free)

Hardware:
Blackmagic Intensity Extreme thunderbolt or pcie version:
http://www.blackmagicdesign.com/products/intensity
For high quality live capture of HDMI and any analog signal

Matrox triple head: splits an outgoing monitor signal to three separate monitors. Allows a regular laptop to support three projectors simultaneously. Most recent mac laptops will want the "display port" edition. Be sure to choose the correct one for the machine you are planning on using it with. There are 4 non-interchangeable versions.
http://www.matrox.com/graphics/en/products/gxm/th2go/displayport/

Physical computing and sensor resources

Adafruit: sensors, microcontrollers, tutorials, and parts – targeted to the DIY world

http://www.adafruit.com/

Sparkfun: sensors, microcontrollers, tutorials, parts – targeted to the DIY world

https://www.sparkfun.com/

PJRC: maker of the Teensy controller – a 32 bit arduino compatible microcontroller, with built in touch capacitance sensor, and 16 bit audio.

http://pjrc.com/store/teensy31.html

Mouser Electronics – sells 1 to 1,000,000 of virtually any electronic component ever. Targeted to OEM engineers.

http://uk.mouser.com/

Jameco – wholesaler of power supplies and electromechanical parts

http://www.jameco.com/

Farnell- UK based wholesaler

http://uk.farnell.com/

pluginwear – Italian based distributer of wearable textile materials

http://www.plugandwear.com/default.asp?mod=home

markertek – conductive textiles in quantity

http://www.marktek-inc.com/eeontexconductextiles.htm

imagesco : stretch sensors

http://www.imagesco.com/sensors/stretch-sensor.html

Parts express – us based audio parts wholesaler

http://www.parts-express.com/

Some specific products
* conductive thread - http://www.maplin.co.uk/p/silverthread-conductive-thread-10m-n36dd and
http://www.adafruit.com/products/640
* resistive thread
* conductive rubber - http://www.adafruit.com/products/519 350 ohms / inch > stretchs by ~ 70%
* velostat- pressure sensitive carbon film that changes resistance in relation to pressure. combine with
woven conductive fabric (1ohm/ft) - use in conjunction w/ velostat for a effect pressure sensor
* knit conductive fabric - stretchy jersey type fabric - can work as a "variable" resistor to sense stretch.

Reading:

Useful technical references and guides
Web sources

kobekant (Hannah perner wilson's resource on e-textile based computing)
http://www.kobakant.at/DIY/

Adafruit tutorials : https://learn.adafruit.com/

CNMAT (center for new music and audio technology) – has a useful materials resource page
describing materials in house http://cnmat.berkeley.edu/resources
Reading Capacitor Codes
http://www.ece.ucsb.edu/courses/ECE002/2A_F08Shynk/ReadingCapacitorCodes.pdf
Reading resistors
http://www.instructables.com/id/How-to-read-color-codes-from-resistors-1/

Books

Learning processing
Daniel Shiffman

The Nature of Code: simulating natural systems with processing
Daniel Shiffman

Processing: a programming handbook for visual designers and artists
Casey Reas and Ben Fry

Making things talk: physical computing with sensors, networks and arduino
Tom Igoe

Theoretical reading

Aesthetics of Interaction in Digital Art
Katja Kwastek

A History of Experimental Film and Video, 2nd Ed.
L. Rees

Bodies in Code: interfaces with digital media
Mark B Hansen

Closer
Susan Kozel

Digital Performance
Steve Dixon

Lunenfeld, Peter (ed.). The Digital Dialectic: New Essays on New Media. 1999. Leonardo / MIT Press. Cambridge, MA.

Entangled: Technology and the Transformation of Performance
Chris Salter

Exhausting Dance: performance and the politics of movement
Andre Lepecki

Installation art: a critical history
Claire Bishop

Moving without a body: Digital Philosophy and Choreographic Thoughts
Stamatia Portanova

New Screen Media: cinema-art – narrative
Martin Reiser and Andrea Zapp

Performance and Technology
Susan Broadhurst and Josephine Machoon

Sensorioum: embodied experience, technology and contemporary art
Caroline Jones

Sounding New Media: immersion and embodiment in arts and culture
Frances Dyson

Staging the Screen: the use of film and video in Theater
Greg Gieskam

Touch: sensuous theory and multisensory media
Laura U Marks

The Way of Acting: The Theater Writing of Tadashi Suzuki
Tadashi Suzuki