

A scanning electron micrograph (SEM) of a tomato leaf surface, showing a large, oval-shaped stomate with a thick, raised rim. The surrounding leaf surface is covered with numerous small, rounded, and elongated structures, likely trichomes or other epidermal cells. The image is rendered in shades of green and black, with a high level of detail showing the texture of the leaf surface.

# Botanic Gardens, Connectedness and Digital Media

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# Key Ideas

- Pre-digital botanic gardens are both low-mediated AND high-mediated spaces
- Digital Media has the capacity to enhance SOME but not all kinds of connectedness in the botanic garden setting
- Badly designed digital media experiences creates disconnection, not digital media itself



# Digital Distraction, the Museum & the Garden

*“And the further we distance ourselves from art itself, from being in front of it with all filters gone, life is what we lose — art’s and ours.” Holland Cotter*



Visitors in museums using ArtLens App on iPad at Cleveland Museum of Art



ecoMOBILE  
<http://ecolearn.gse.harvard.edu/ecoMOBILE/design>



ecoMOBILE

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## Kinds of Connectedness

### *Low-mediated*

- tactile/physical

### *High-mediated*

- visceral
- intellectual
- social

## Learning from New Media Art

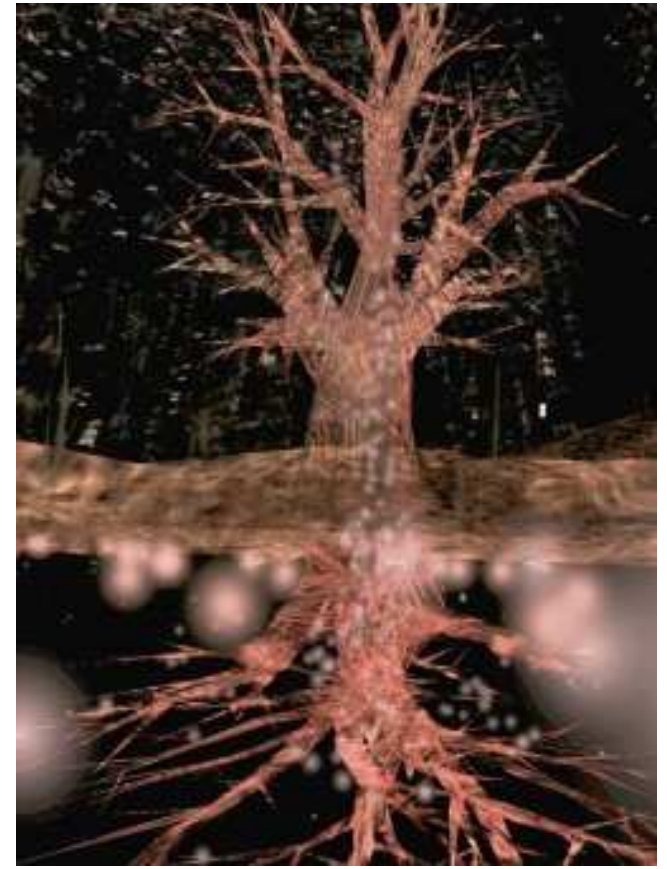
- Amplify auditory and visual senses



Alex Metcalfe's Kew Gardens tree listening stops , 2008, 9



Char Davies. Forest Stream, Ephémère (1998)

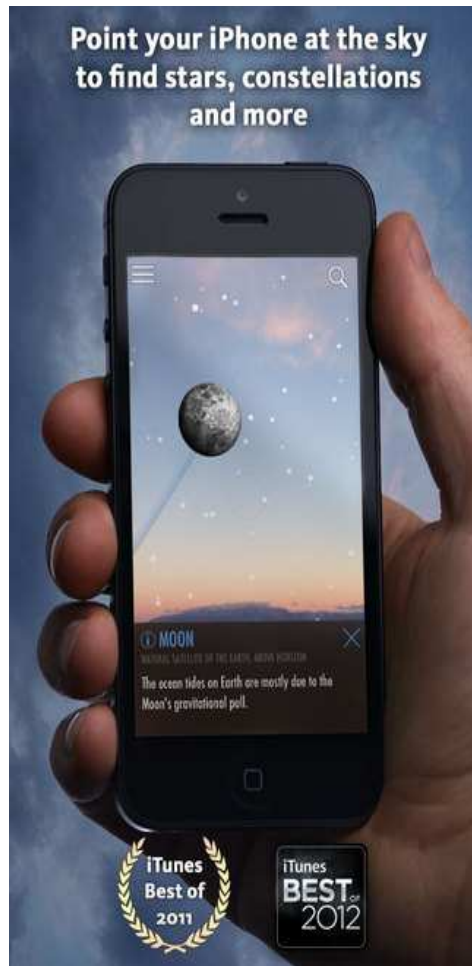


Char Davies, Tree, from Osmose, 1995

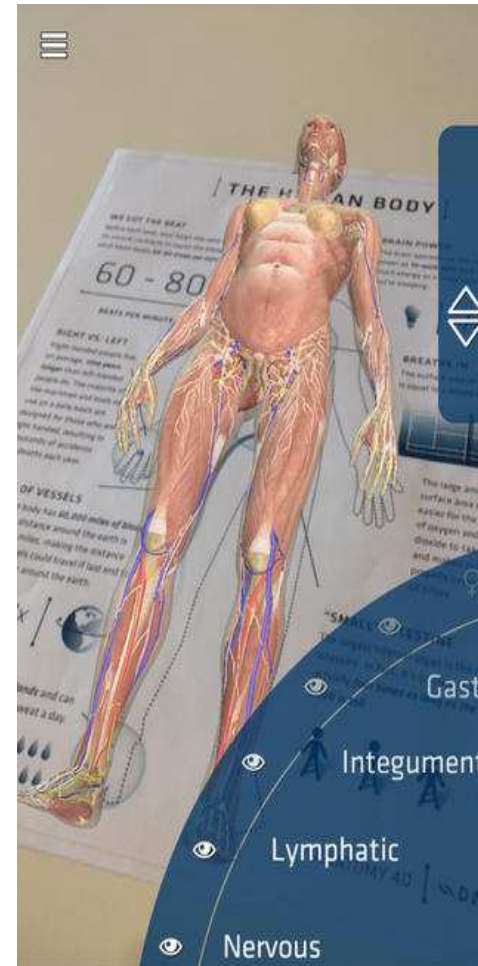


# Learning from Augmented Reality Apps

- make immediate, invisible natural phenomena more perceptible



SkyView app



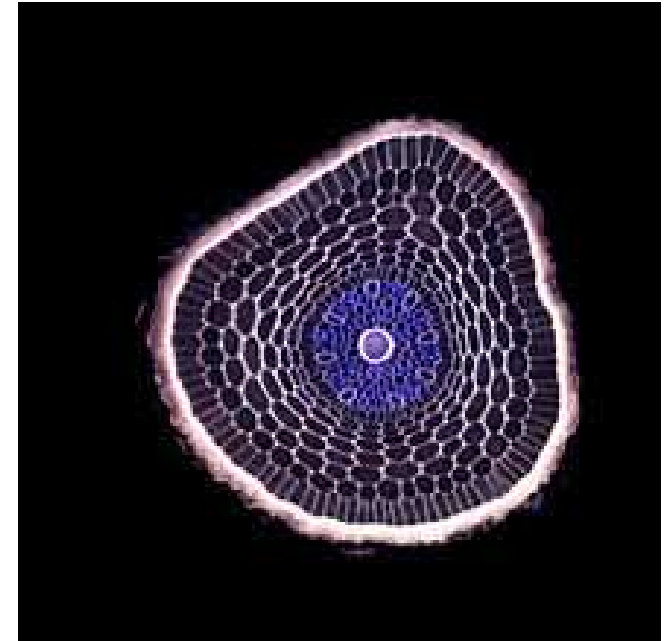
Anatomy 4D app

## Science Imagery and Connectedness

- Untapped ways of building visceral, intellectual connections, well-suited to digital media

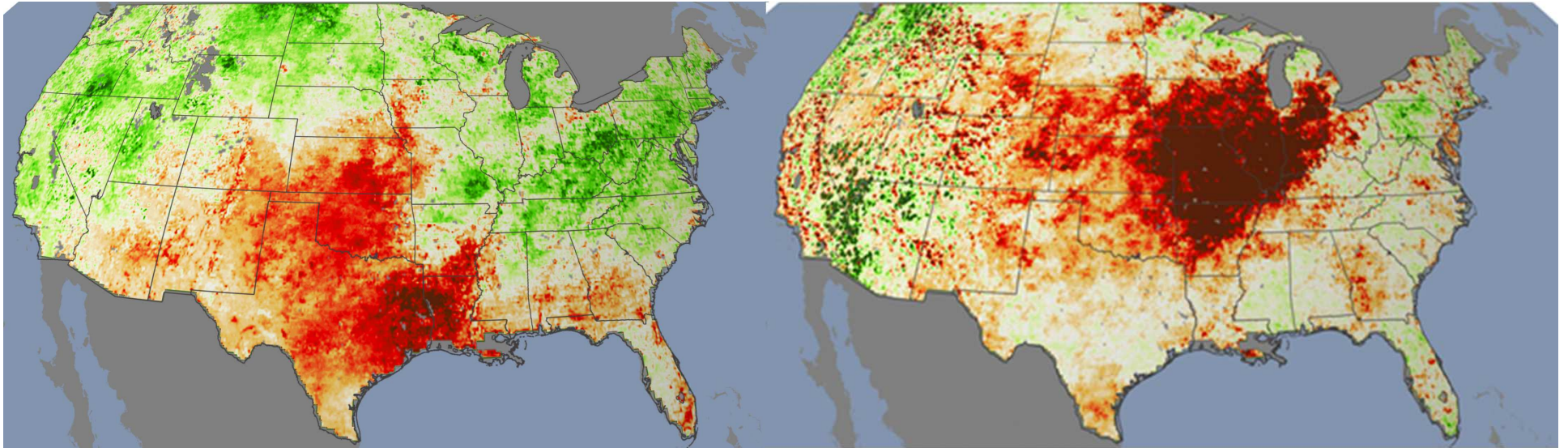


Barley



Cross-section of barley root





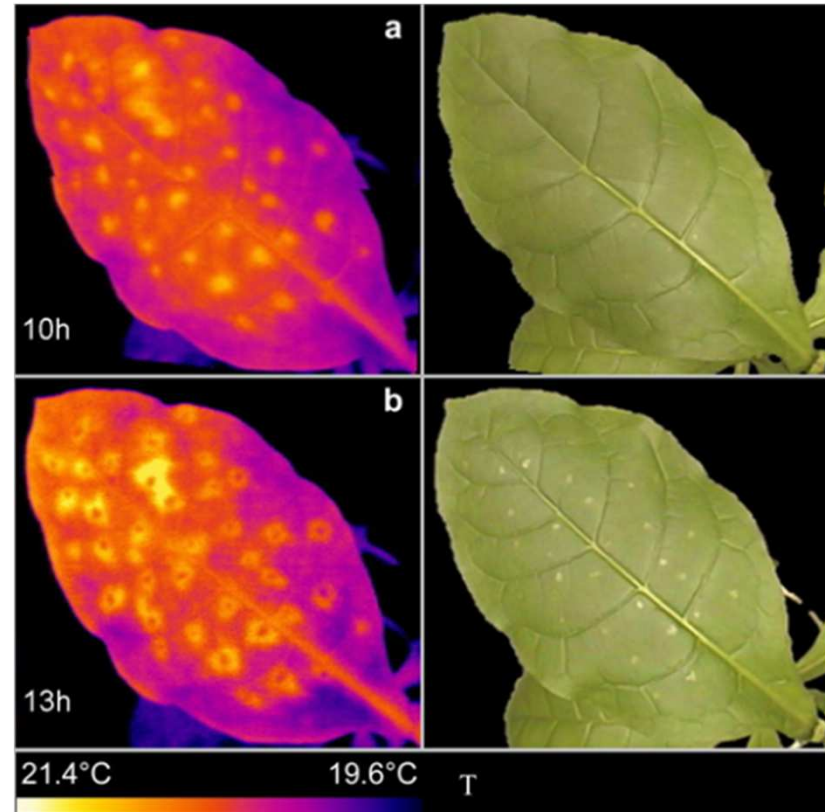
Plant stress on June 24, 2011  
<http://www.nasa.gov/topics/earth/features/plant-stress.html>

Plant stress on August 28, 2012



Excess nitrogen in sugar beets field

[http://www.nasa.gov/mission\\_pages/landsat/news/sweet-spot\\_prt.htm](http://www.nasa.gov/mission_pages/landsat/news/sweet-spot_prt.htm)



Thermographic visualisation of the local resistance response of tobacco to tobacco mosaic (TMV) infection

<http://www.fpb.ugent.be/lchaerle/TIPS/TIPS.html>



1984 Athabasca Oil sands

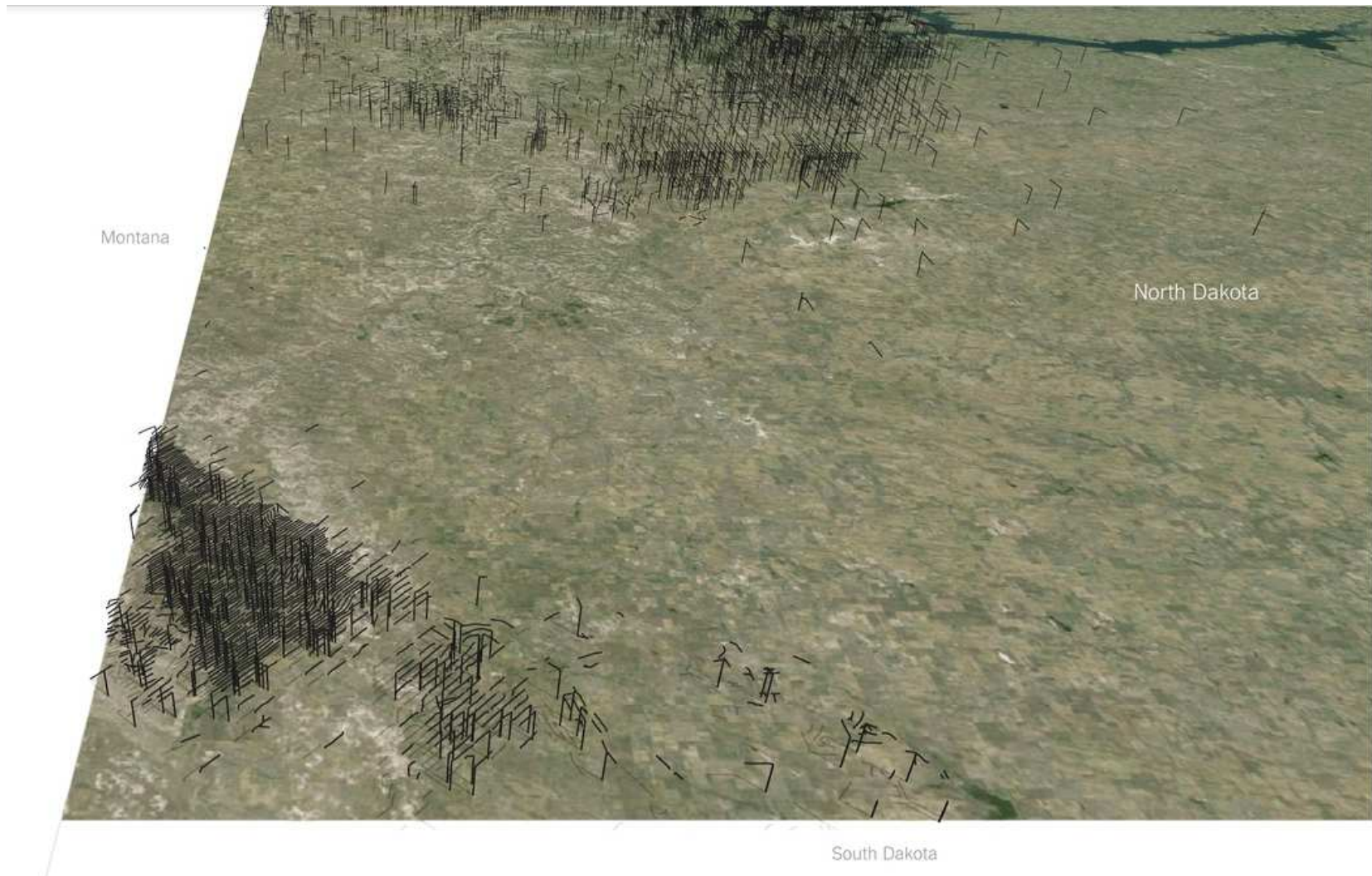
<http://earthobservatory.nasa.gov/Features/WorldOfChange/athabasca.php>



2011 Athabasca Oil Sands

<http://earthobservatory.nasa.gov/Features/WorldOfChange/athabasca.php>





What North Dakota Would Look Like if Its Oil Drilling Lines Were Aboveground

By GREGOR AISCH NOV. 25, 2014

[http://www.nytimes.com/interactive/2014/11/24/upshot/nd-oil-well-illustration.html?\\_r=0&abt=0002&abg=0](http://www.nytimes.com/interactive/2014/11/24/upshot/nd-oil-well-illustration.html?_r=0&abt=0002&abg=0)



## Social Media and Connectedness

Social Media – Marketing tool or Tool for Building Communities of Action?

*“I see part of our role on social media as engaging with the communities who care about the same issues we care about.”*

*Jonah Holland, PR & Marketing Coordinator of the Lewis Ginter*



## Social Media and Connectedness

*“In 2009, 350.org, agitating for action on climate change, used social media to organize more than 5,000 events in some 180 countries, in what CNN called “the most widespread day of political action in the planet’s history.”*

*Caroline Fraser author of Rewilding the World*



# Digital Media Design Criteria for Connectedness

## *Privilege the Real*

- Establish digital free zones to encourage tactile interaction
- Ensure enough time is spent observing real plants or garden features before augmenting experience with digital media
- Minimize clashes between visual and/or auditory experiences
- Supplant direct visual experiences with a digitally mediated ones only if it enhances perception of plant life

## Digital Media Design Criteria for Connectedness

### *Enhance the Senses & Affect*

- Enhance audibility and visibility of botanic garden phenomena that is difficult to perceive
- Employ absorbing, emotional narratives that encourage being lost in the natural world and its stories



## Digital Media Design Criteria for Connectedness

*Connect the Immediate Experience with Larger Perspectives*

- Privilege visual and audible material based on immediate and local realities
- Relate the local to the regional and the global.