Usable Interfaces:
How to deal with complexity?

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universität
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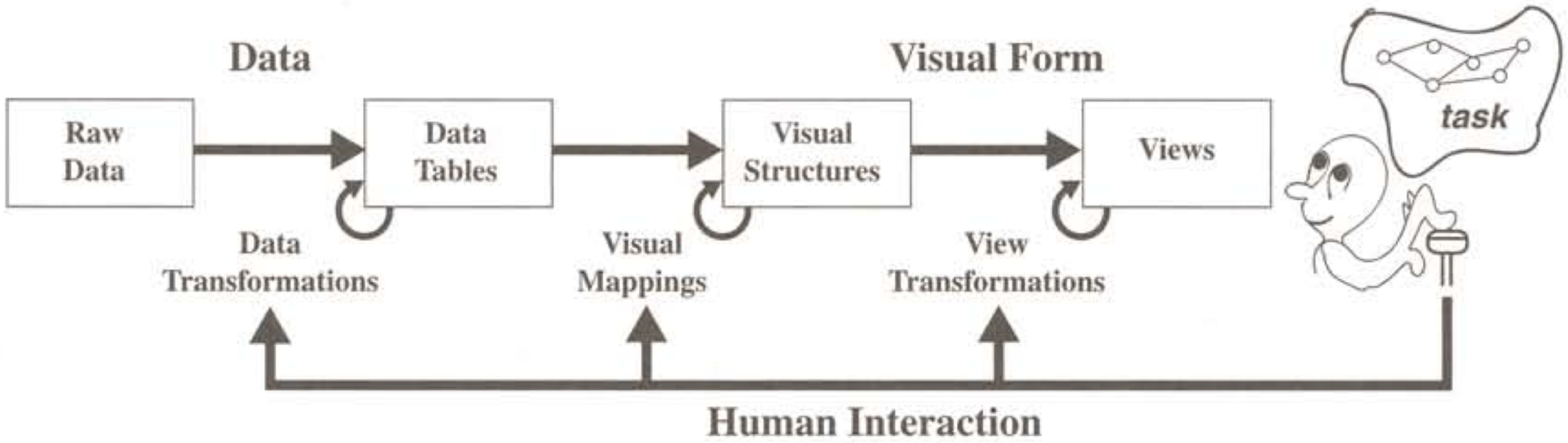
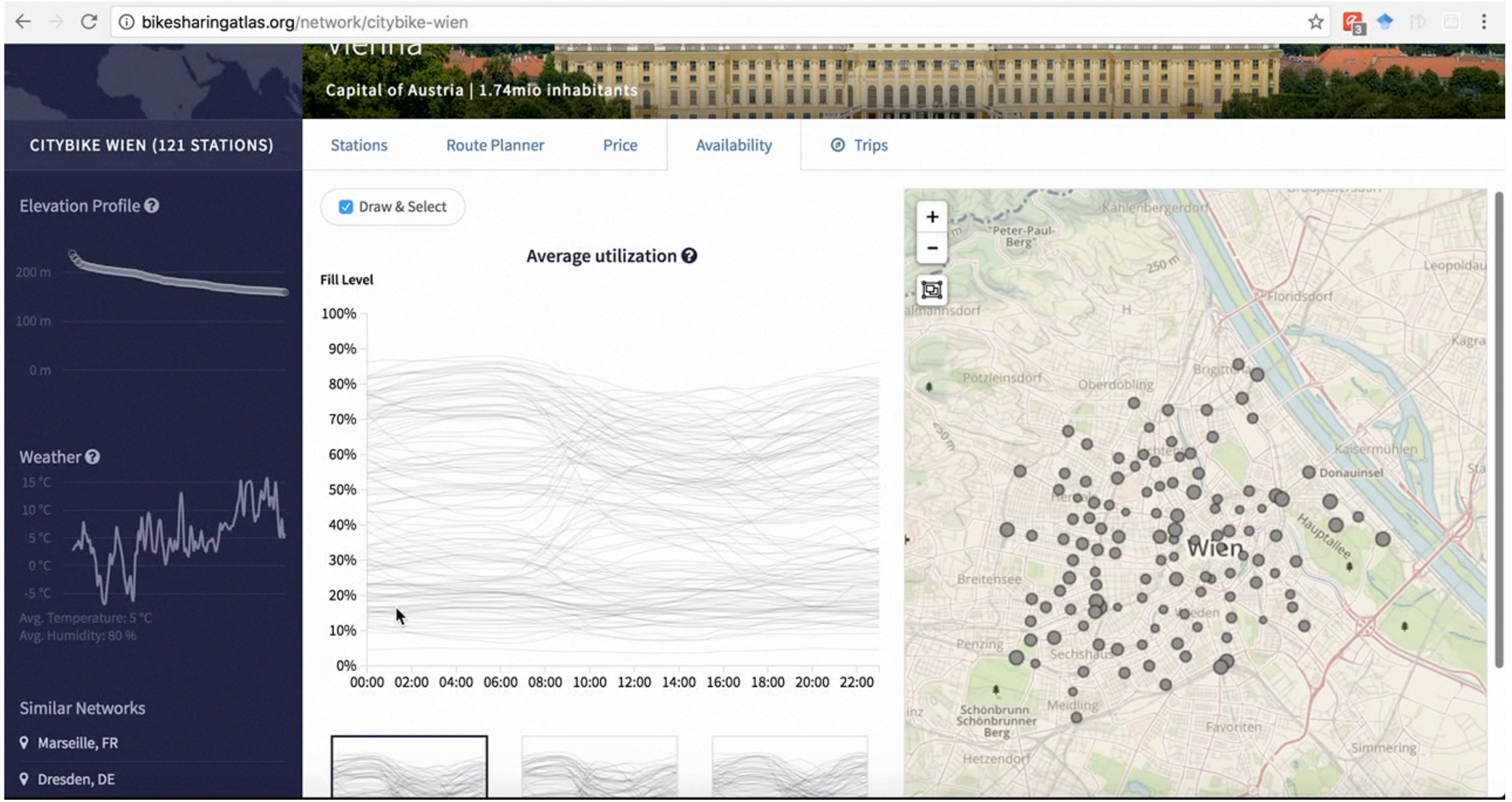
Conventional Visualization Pipeline



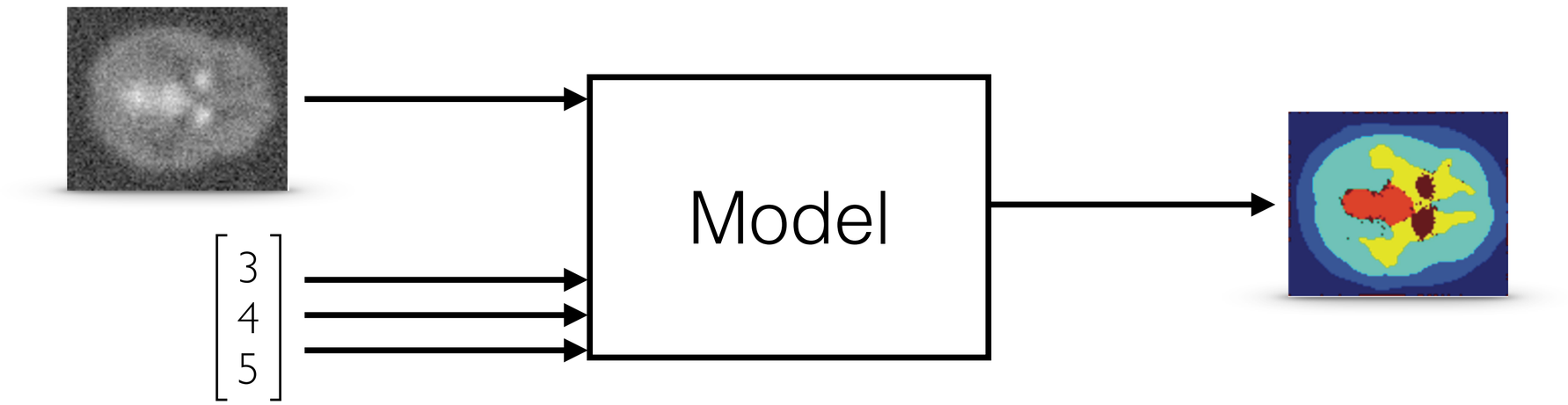
Raw Data: idiosyncratic formats
Data Tables: relations (cases by variables) + metadata
Visual Structures: spatial substrates + marks + graphical properties
Views: graphical parameters (position, scaling, clipping, . . .)

Card, Mackinlay, Shneiderman.
Readings in Information Visualization:
Using Vision to Think.
Morgan Kaufmann.1999.

Example: bikesharingatlas.org

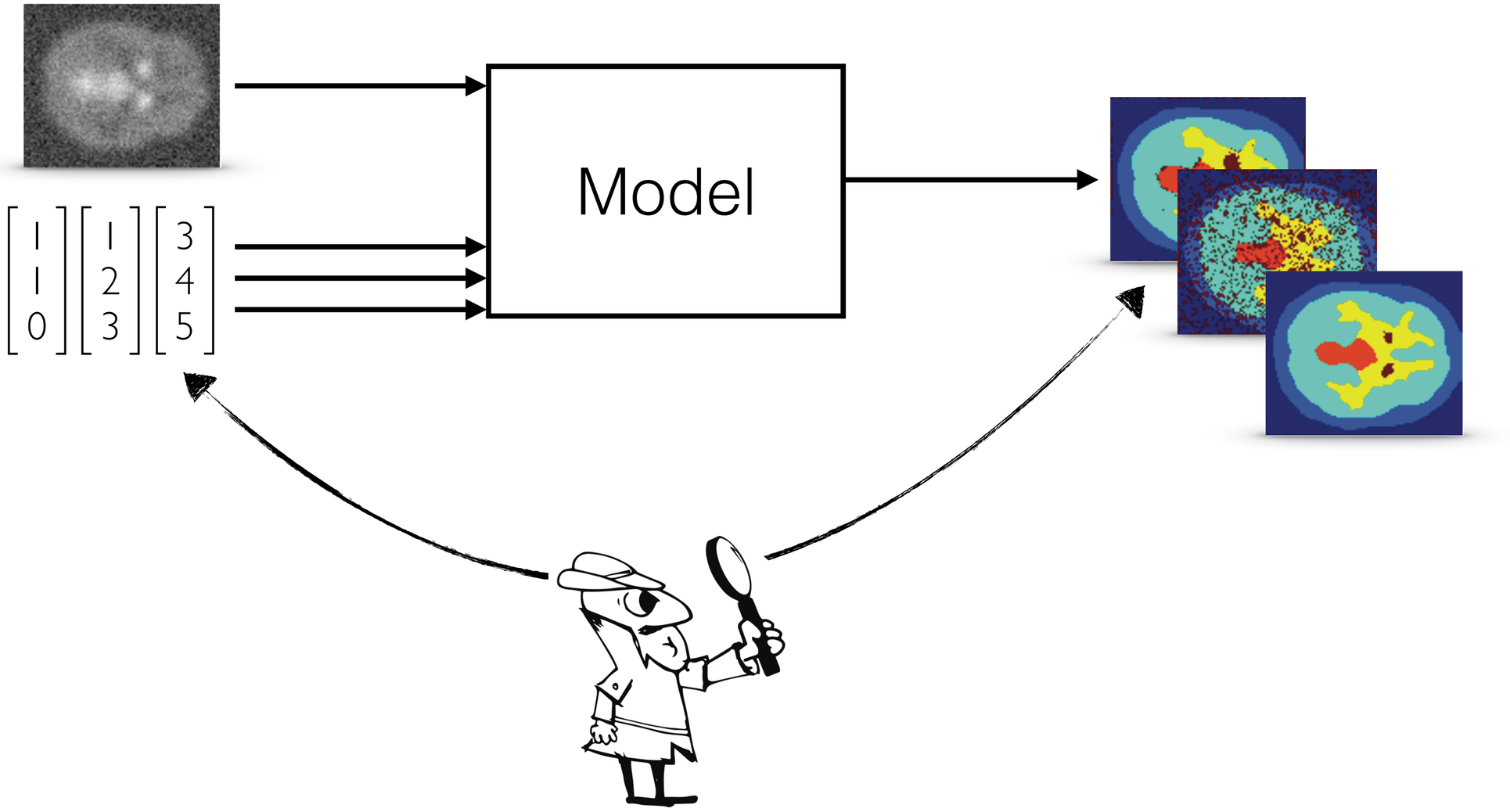


Visual Parameter Space Analysis (vPSA)

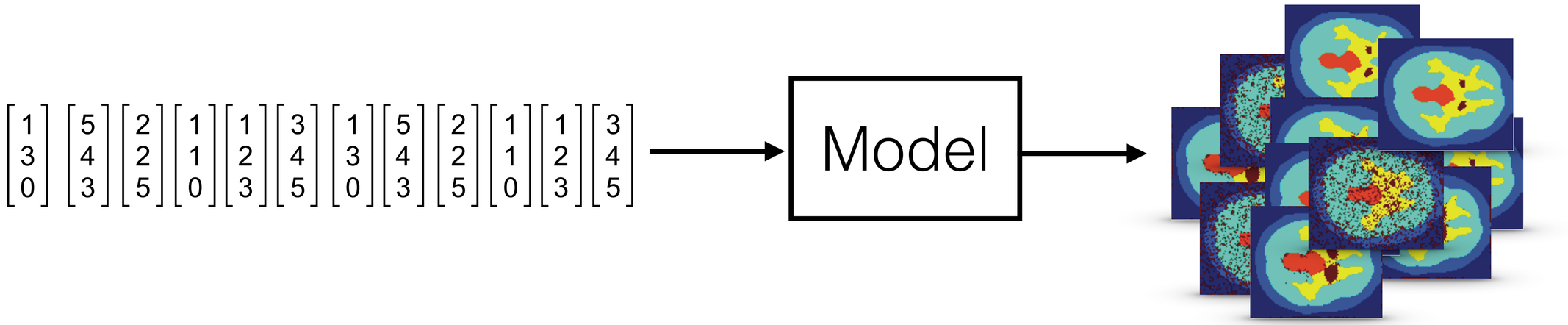


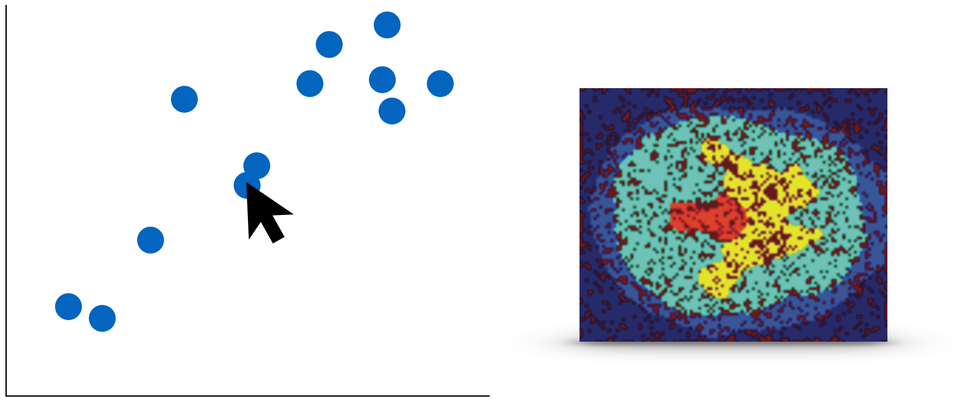
Sedlmair et al.
Visual Parameter Space Analysis: A Conceptual Framework.
IEEE TVCG (Proc. InfoVis), 20(12): 2161-2170, 2014.

Traditional: (informed) trial & error

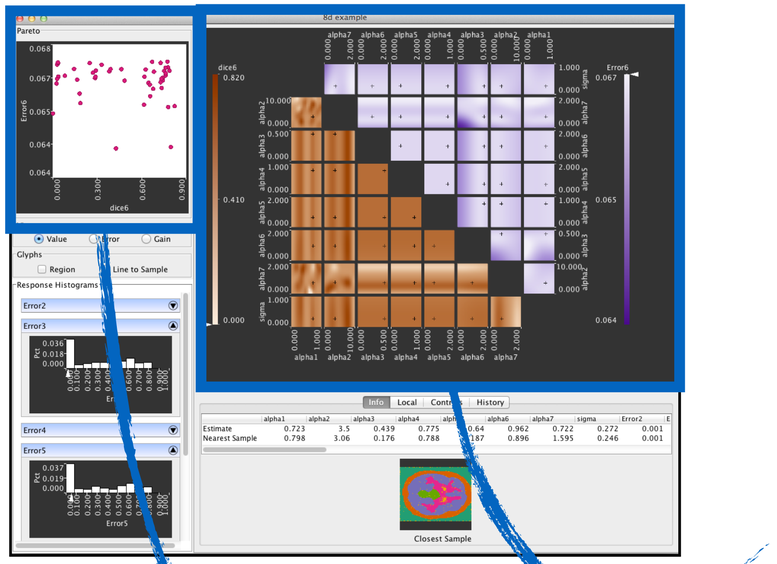


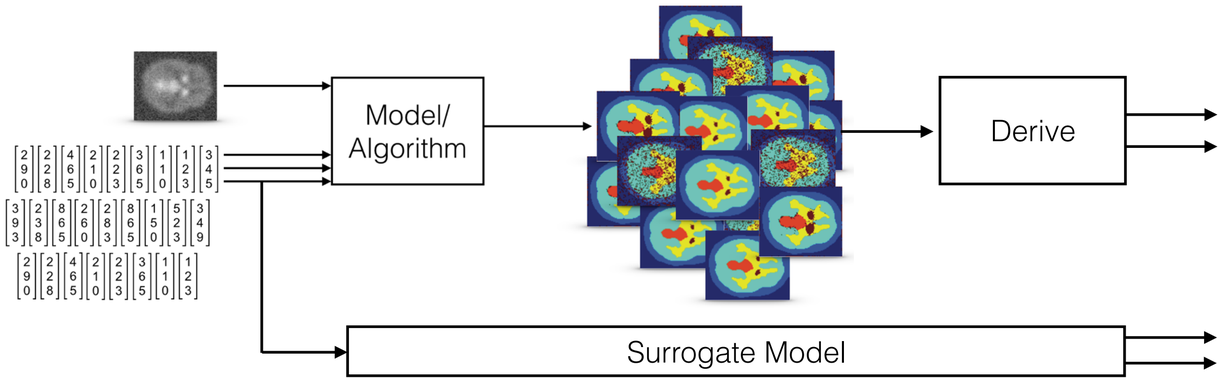
New: Systematic visual analysis

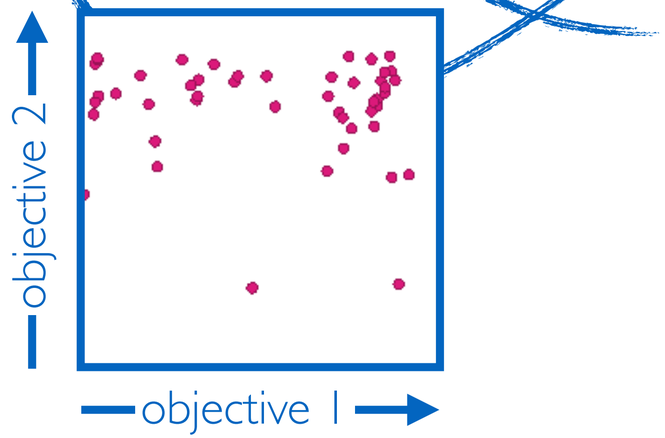




Example 1: Tuner







- Derive: *2 objective measures*
- Surrogate: *predicting continuous-to-continuous*

Torsney-Weir, et al.
Tuner: Principled parameter finding for image segmentation algorithms using visual response surface exploration.
IEEE TVCG (Proc. SciVis), 17(12): 1892-1901, 2011.

Example 2: Vismon

Harvest Rate

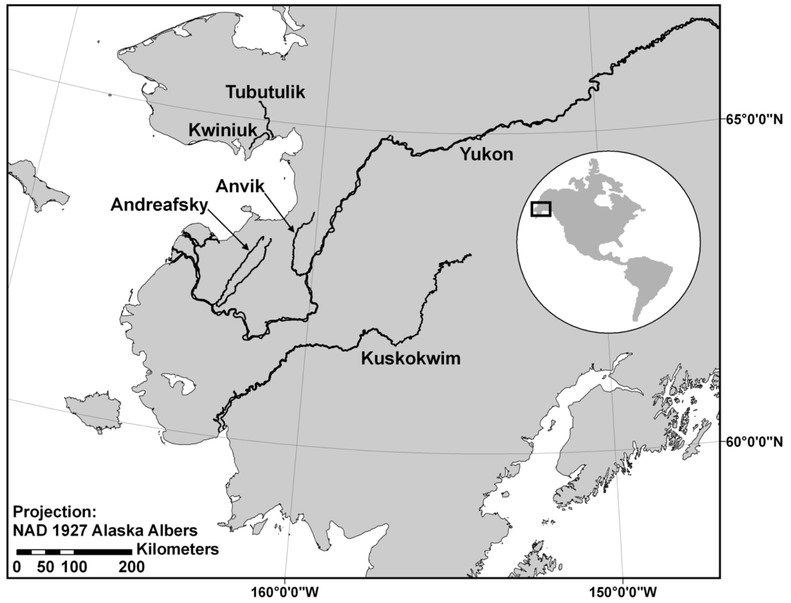
Escapement

Bill Reid, Haida Dog Salmon - Skaagi, 1974. © Bill Reid Estate

Food

$

Spawners



Fisheries Managers

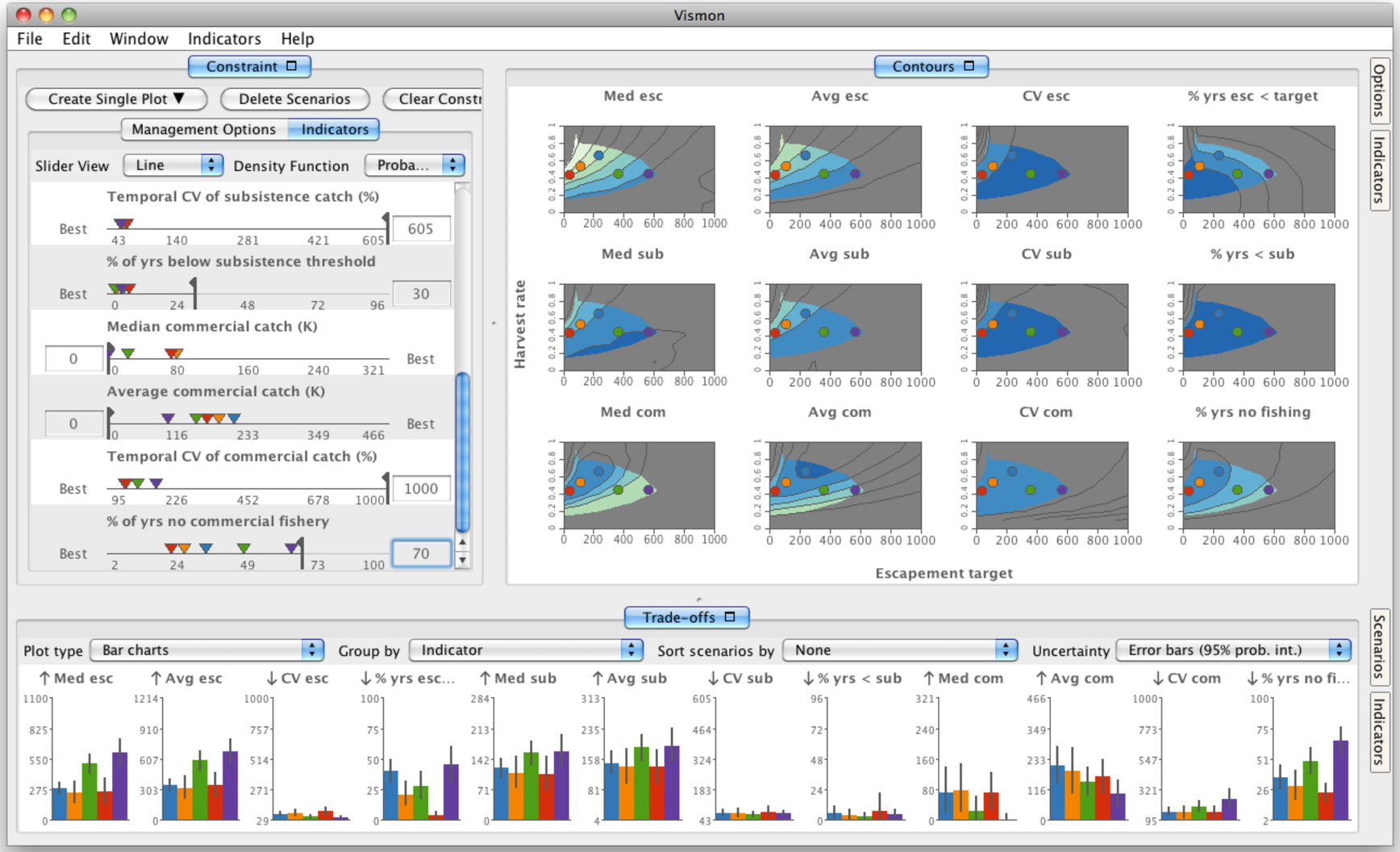
Environ-mentalists

Policy Makers

First Nations

Booshehrian et al.
Vismon: Facilitating Analysis of Trade-Offs, Uncertainty, and Sensitivity In Fisheries Management Decision Making.
Computer Graphics Forum (Proc. EuroVis), 31(3): 1235-1244, 2012.

Example 2: Vismon



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Thanks! Questions?

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