The Data Delusion
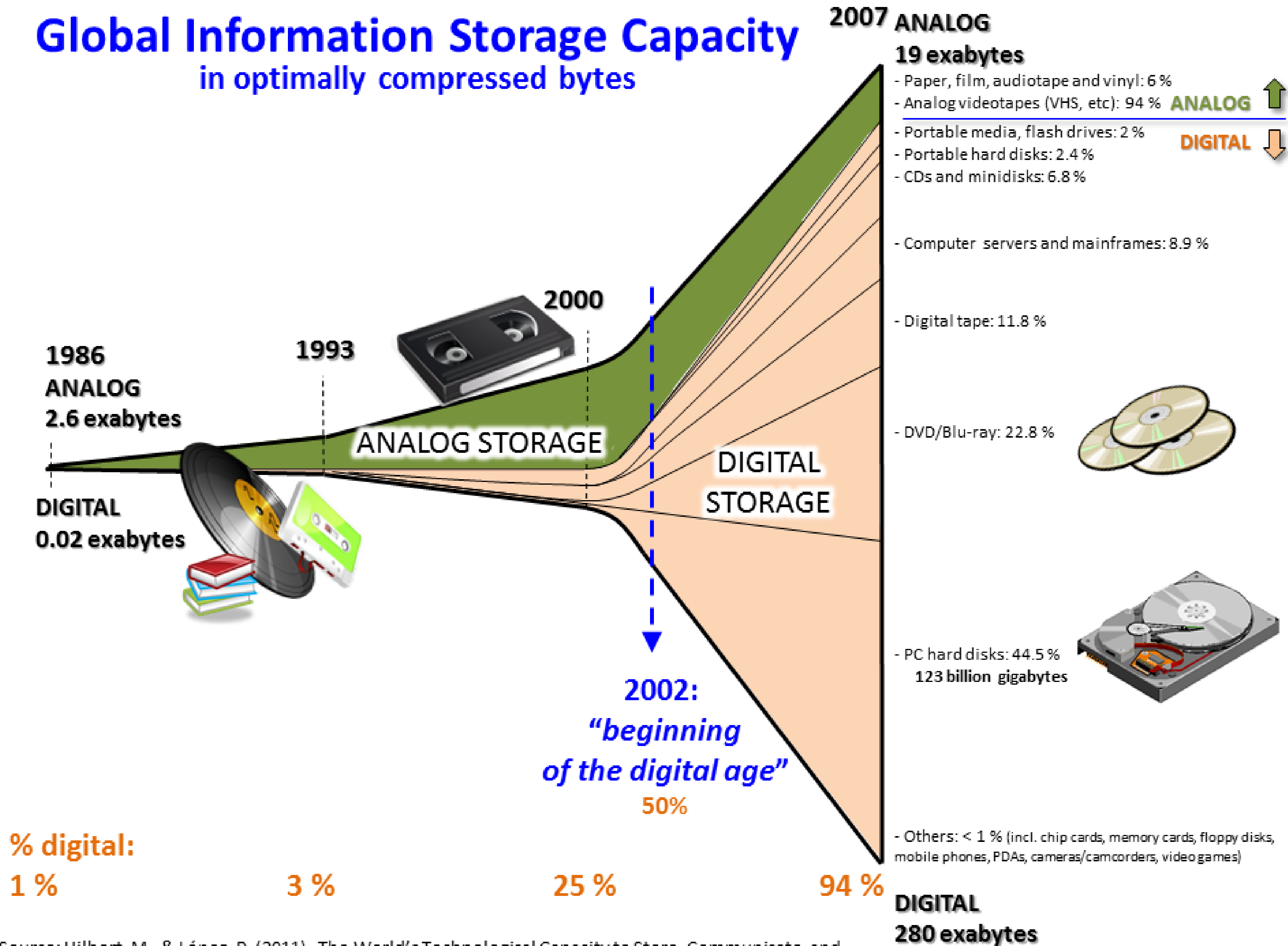
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Global Information Storage Capacity
in optimally compressed bytes

2007 ANALOG
19 exabytes
- Paper, film, audiotape and vinyl: 6 %
- Analog videotapes (VHS, etc): 94 %   **ANALOG** ↑

DIGITAL ↓
- Portable media, flash drives: 2 %
- Portable hard disks: 2.4 %
- CDs and minidisks: 6.8 %

- Computer servers and mainframes: 8.9 %

- Digital tape: 11.8 %

- DVD/Blu-ray: 22.8 %

2000

1993

1986
ANALOG
2.6 exabytes

ANALOG STORAGE

DIGITAL
STORAGE

DIGITAL
0.02 exabytes

- PC hard disks: 44.5 %
        123 billion gigabytes

2002:
"beginning
of the digital age"
50%

- Others: < 1 % (incl. chip cards, memory cards, floppy disks, mobile phones, PDAs, cameras/camcorders, video games)

% digital:
1 %   3 %   25 %   94 %

DIGITAL
280 exabytes

Source: Hilbert, M., & López, P. (2011). The World's Technological Capacity to Store, Communicate, and Compute Information. *Science*, 332(6025), 60 −65. http://www.martinhilbert.net/WorldInfoCapacity.html
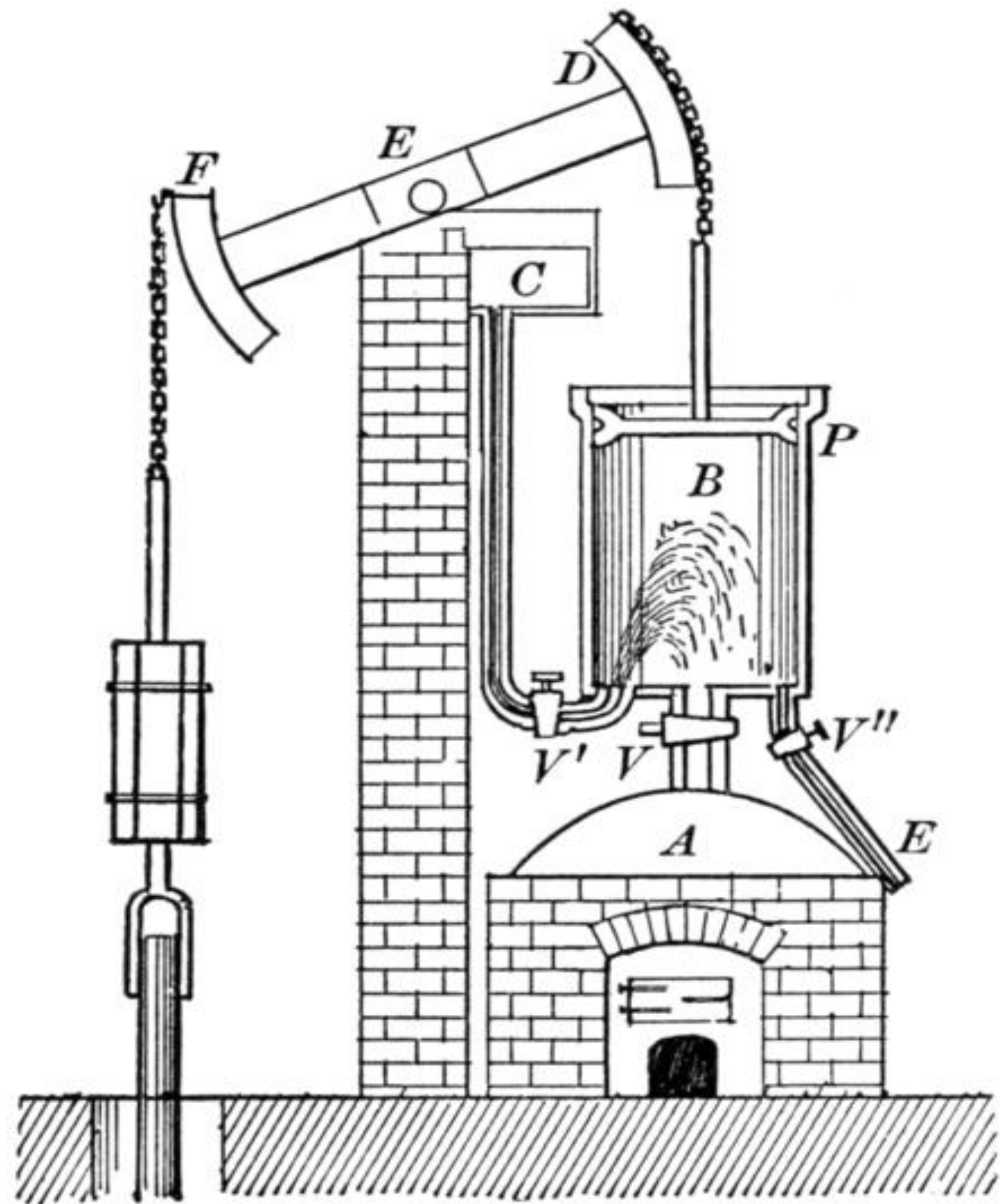
"I had gone to take a walk on a fine Sabbath afternoon. I had entered the Green by the gate at the foot of Charlotte street, and had passed the old washing-house. I was thinking upon the engine at the time, and had gone as far as the herd's house, when the idea came into my mind that, as steam was an elastic body, it would rush into a vacuum, and, if a communication were made between the cylinder and an exhausted vessel, it would rush into it, and might be there condensed without cooling the cylinder … I had not walked farther than the Golf-house, when the whole thing was arranged in my mind."
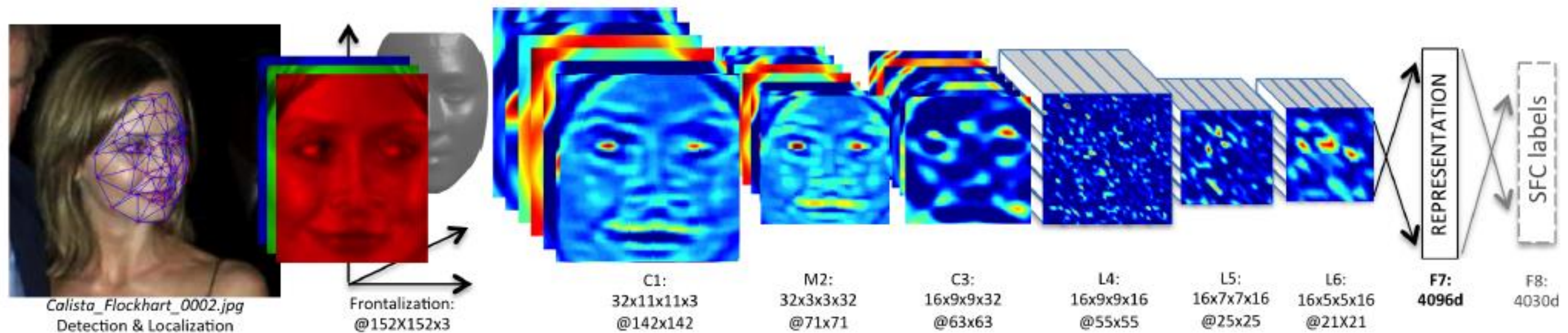
Calista_Flockhart_0002.jpg Detection & Localization	Frontalization: @152X152x3	C1: 32x11x11x3 @142x142	M2: 32x3x3x32 @71x71	C3: 16x9x9x32 @63x63	L4: 16x9x9x16 @55x55	L5: 16x7x7x16 @25x25	L6: 16x5x5x16 @21X21	F7: 4096d	F8: 4030d

Figure 2. **Outline of the *DeepFace* architecture**. A front-end of a single convolution-pooling-convolution filtering on the rectified input, followed by three locally-connected layers and two fully-connected layers. Colors illustrate feature maps produced at each layer. The net includes more than 120 million parameters, where more than 95% come from the local and fully connected layers.
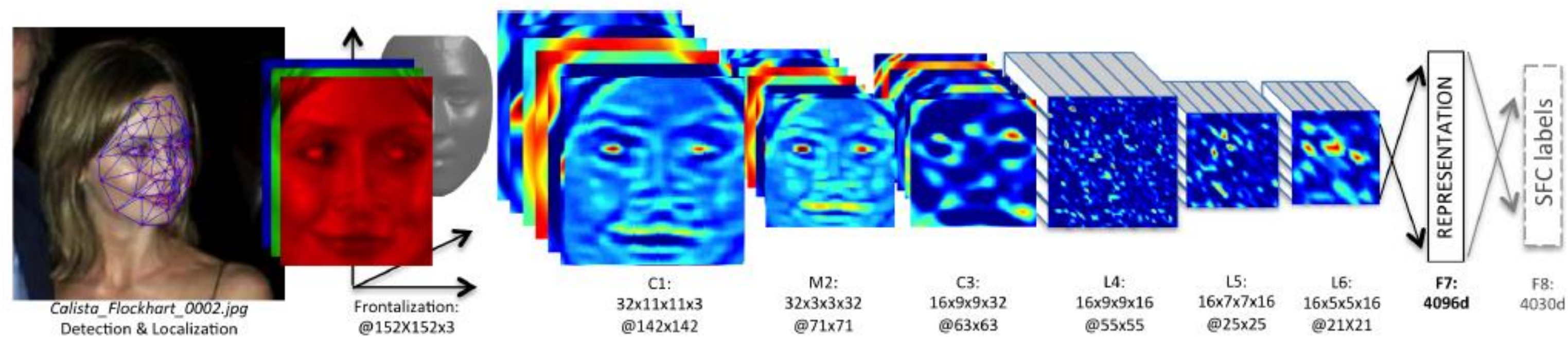
7
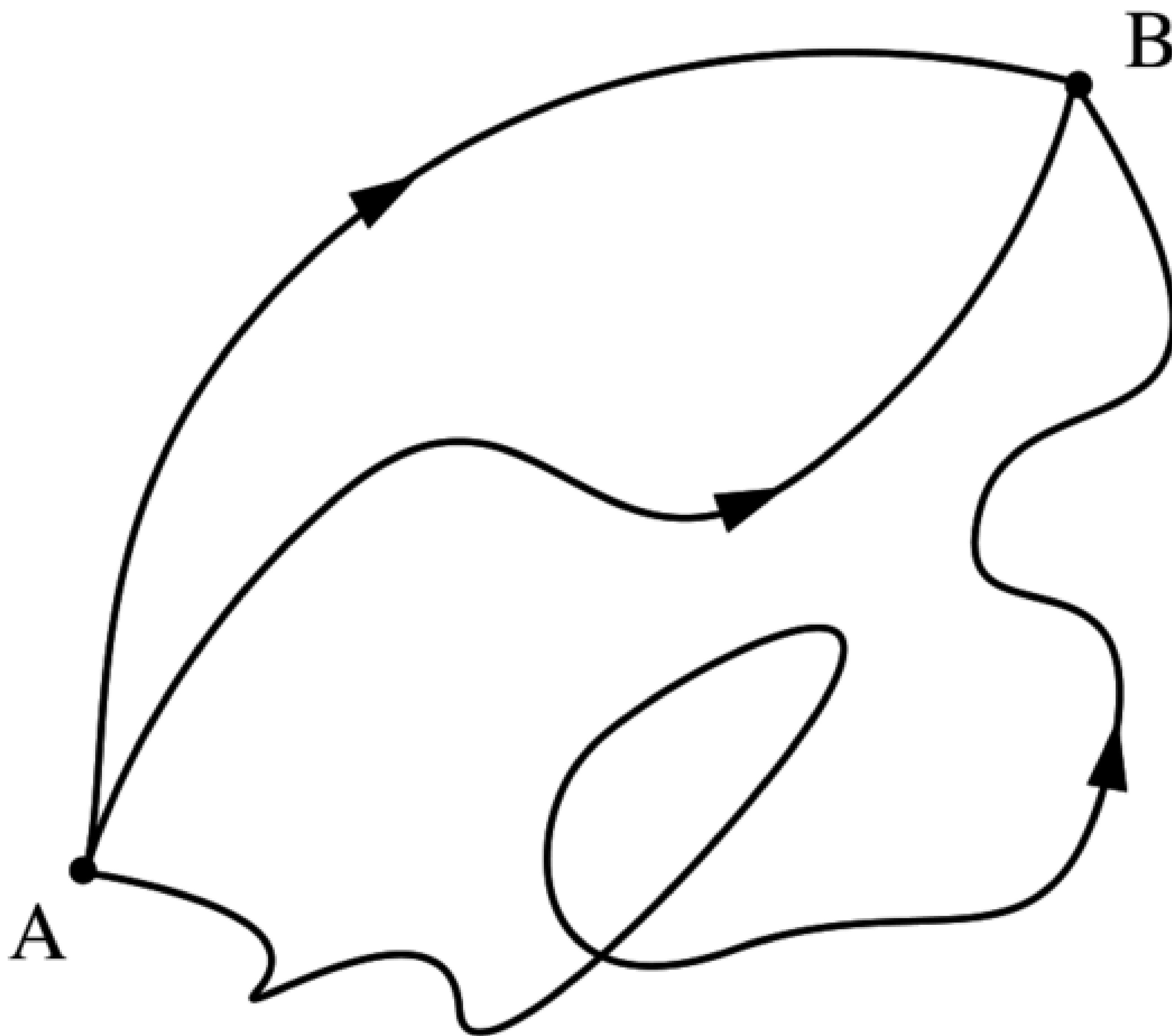
$$f(x)$$

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$$\frac{\mathrm{d}f(x)}{\mathrm{d}x}$$

$$\int f(x)p(x)\mathrm{d}x$$

$$A = U - TS$$