



Computational Photography and Generative AI

Sabine Süsstrunk
IVRL/IC/EPFL



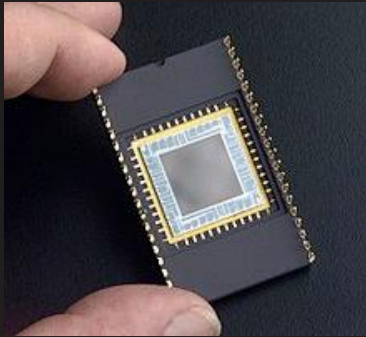
Nicéphore Niépce
1826



Nikon Film SLR Camera F5
1996



1969
CCD



1975
1. Digital Camera

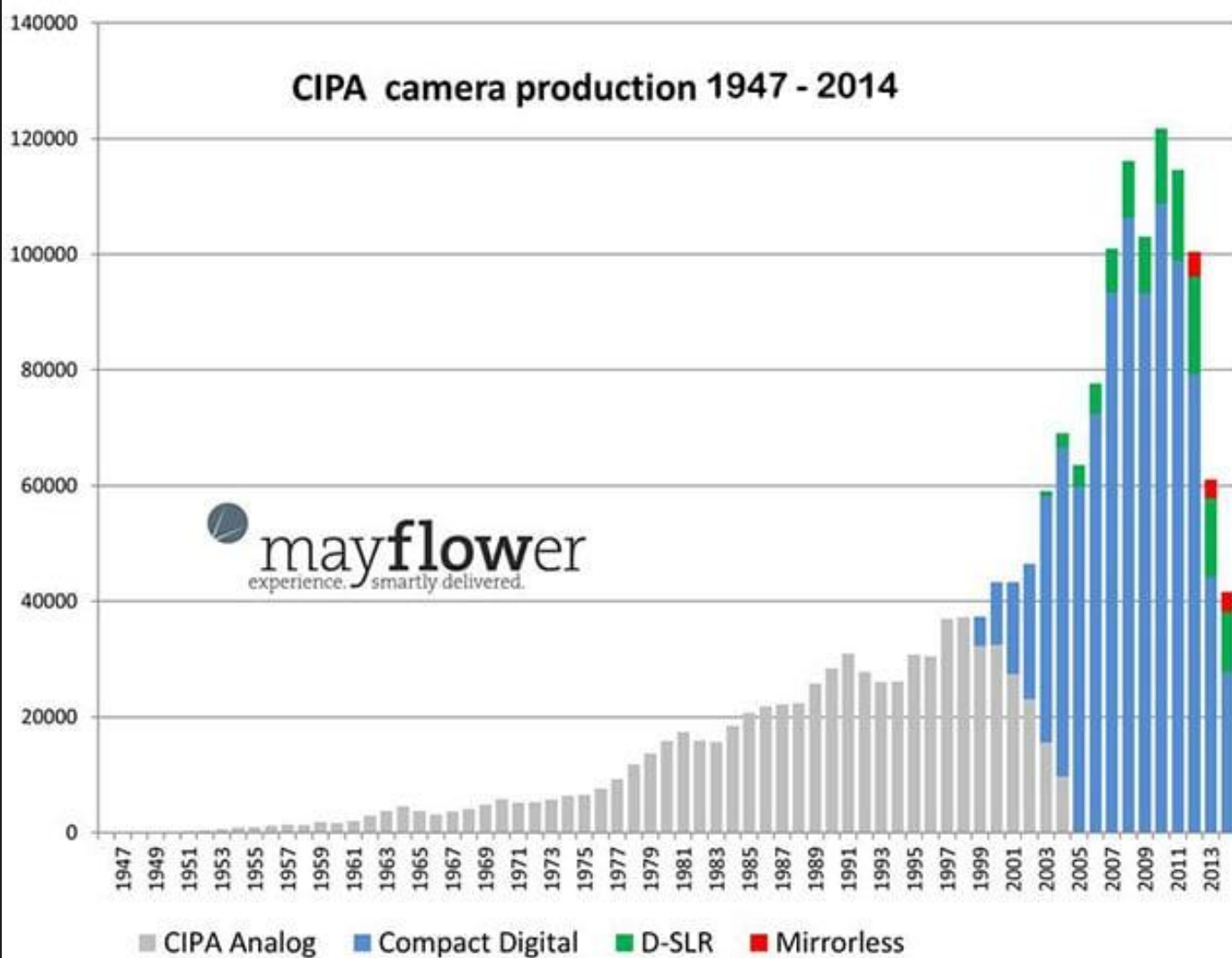


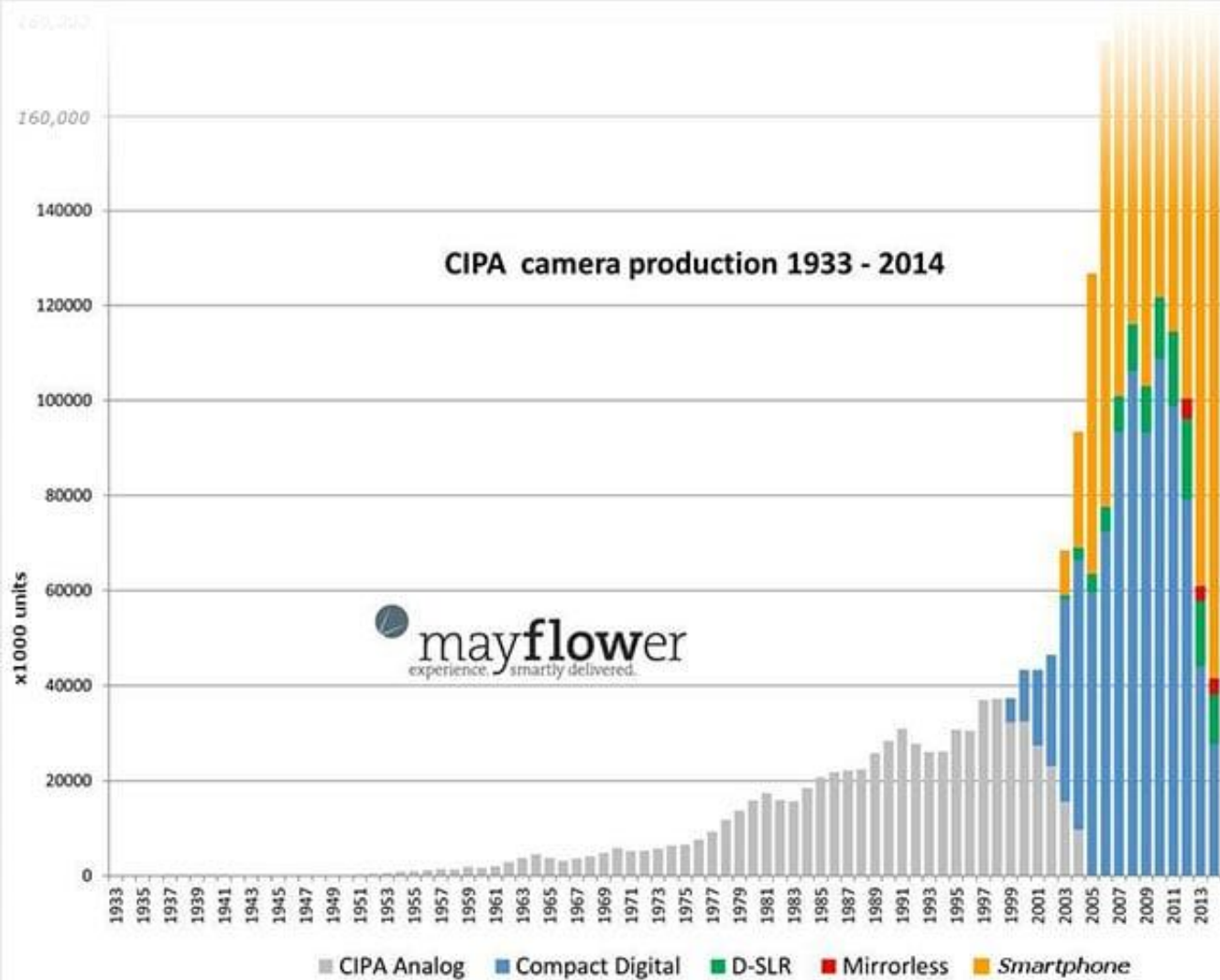
1994
1. Color Digital
Camera < \$1K



2000
1. Cellphone
Camera









EPFL Computational Photography

- Computational photography is about *improving the photographic experiences ...*

EPFL Computational Photography

- Computational photography is about *improving the photographic experiences ...*
- ...by extending digital photography with **knowledge and techniques** from:
 - image processing, computer vision, computer graphics, machine learning, electrical engineering, physics, physiology, and psychophysics.

EPFL Computational Photography

- Extending Field of View
- Extending Resolution
- Extending Dynamic Range
- Extending Depth
- Extending Color beyond RGB
- Extending Illumination
- Extending “the Moment”
- Extending...
-

- Extending Field of View
- Extending Resolution
- Extending Dynamic Range
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- Extending “the Moment”
- Extending...
- ***Improving Image Modalities, Quality and Aesthetics***



International Conference on Computational Photography
July 22-24, 2024 EPFL, Lausanne Switzerland
Co-sponsored by the IEEE CS Society



INTERNATIONAL CONFERENCE ON COMPUTATIONAL PHOTOGRAPHY 2024

July 22-24, EPFL, Lausanne









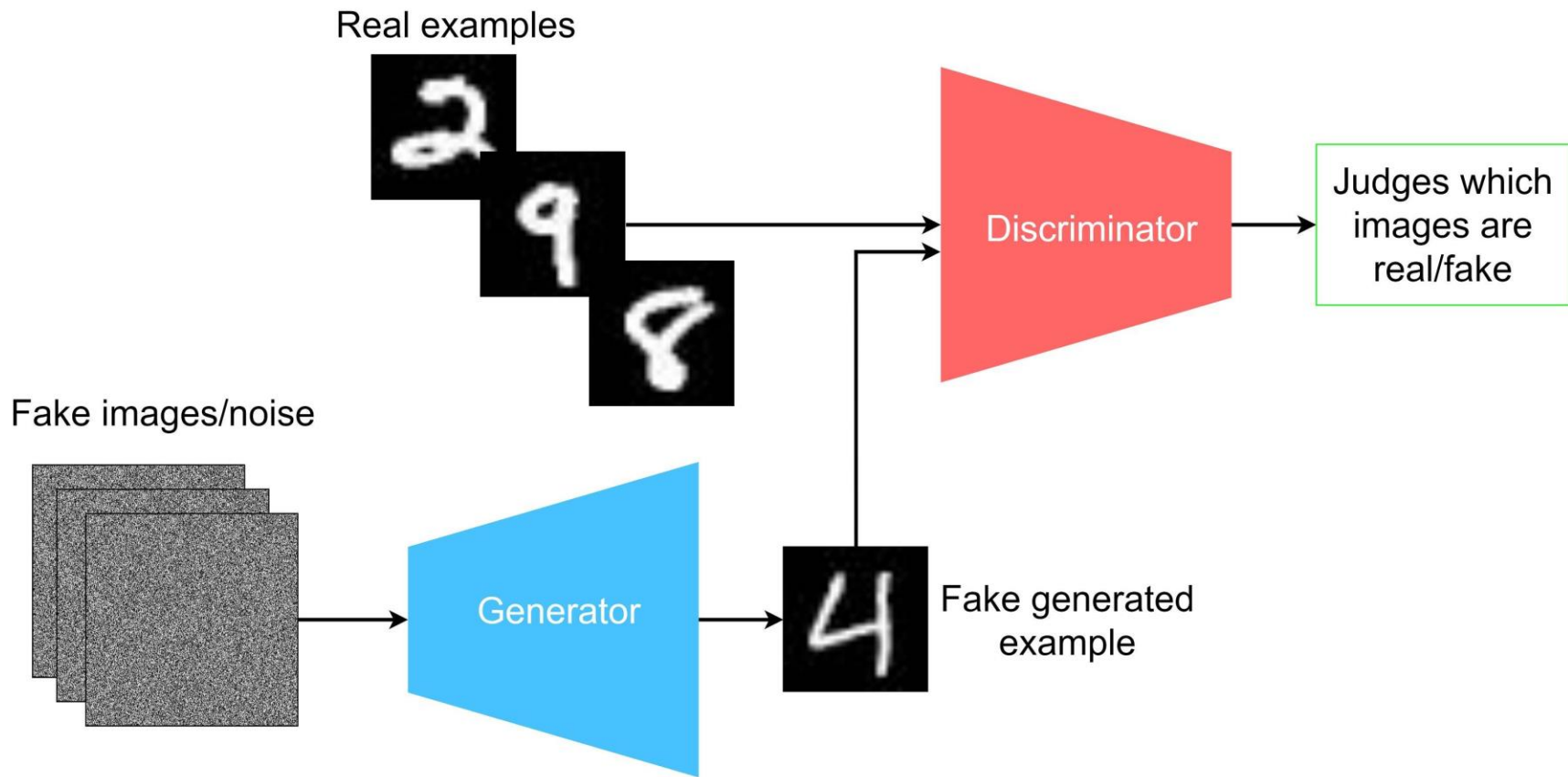








**2007****2008****2009****2010****2011****2012****2013****2014****2015****2016****2017****2018****2019****2020****2021****2022****2023****2024**





source

destination



2018

Coarse styles copied



Mouth



Random latent walk using directions from StyleCLIP, GANSpace, and SeFa.



Play

00:00



<https://openai.com/index/sora/>

Phenaki + Imagen Video Combination

"A blue balloon stuck in the branches of a Redwood tree"

"Camera pans from tree with single blue balloon to the zoo entrance"

"Camera pans to the zoo entrance"

"Camera moves very quickly into the zoo"

"First person view of flying inside a beautiful garden"

"The head of a giraffe emerges from the side"

"Giraffe walks towards a tree"

"Zoom into the giraffe's mouth"

"Giraffe gets close to a branch and picks a blue balloon"

"A single helium blue balloon with a white string is flying towards a giraffe's head", "

"Giraffe chewing with the blue balloon nearby"

"Camera tilting up following the single blue balloon flying away"





DEEPFAKE
AND
YOU

ulation:
trick

EPFL

ICRC

DEEPFAKE

AND YOU





Merci!

sabine.susstrunk@epfl.ch