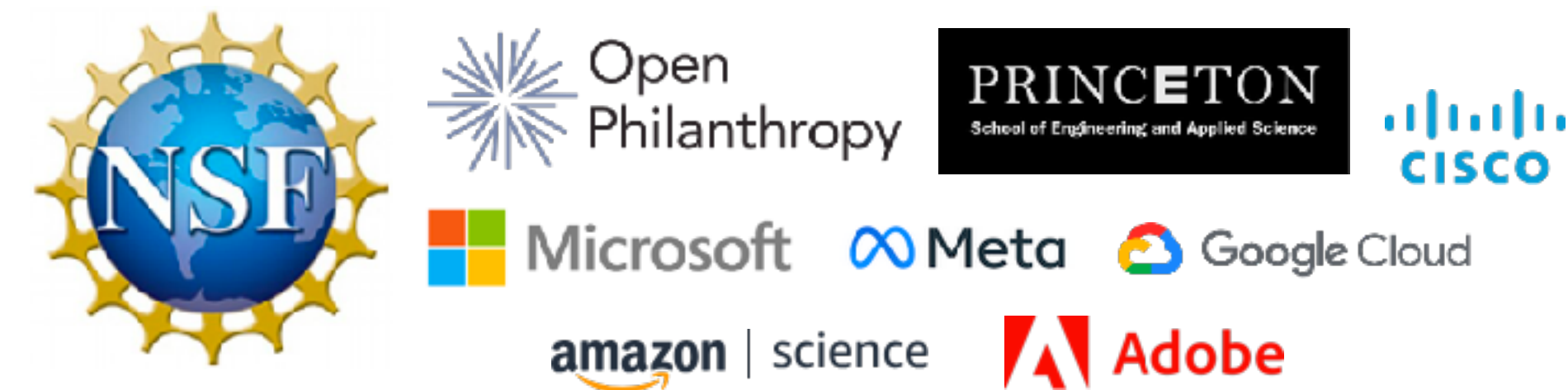


Data, models, society

Olga Russakovsky



Many thanks to our sponsors (who do not necessarily agree with the views of this talk)



<http://visualai.princeton.edu>

 @VisualAllab

Data

Model

Society

Data collection,
annotation, evaluation

Models: architectures,
optimization algorithms

Societal consideration
impacting AI research

Data collection,
annotation, evaluation

Models: architectures,
optimization algorithms

Societal consideration
impacting AI research

Year
~2000



Data collection,
annotation, evaluation

Models: architectures,
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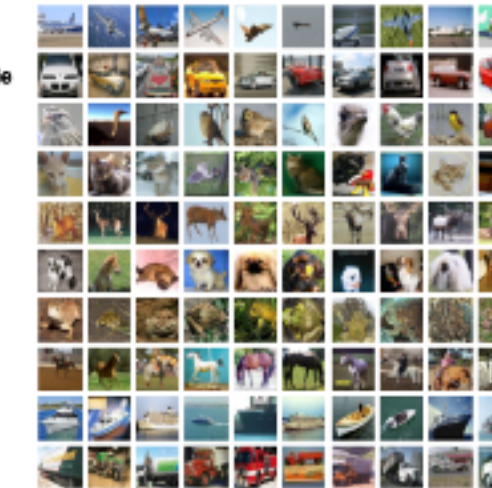
Societal consideration
impacting AI research

Year
~2000

Models on early benchmarks



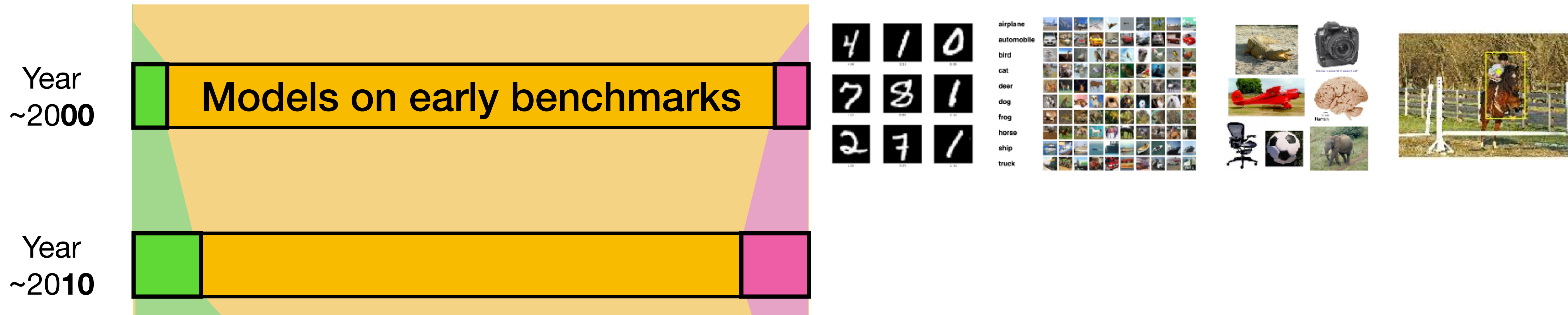
airplane
automobile
bird
cat
deer
dog
frog
horse
ship
truck



Data collection,
annotation, evaluation

Models: architectures,
optimization algorithms

Societal consideration
impacting AI research



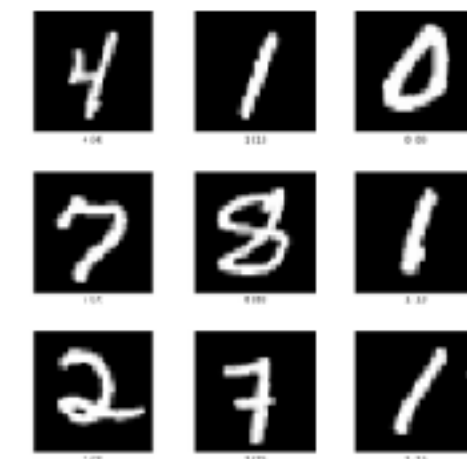
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Models: architectures,
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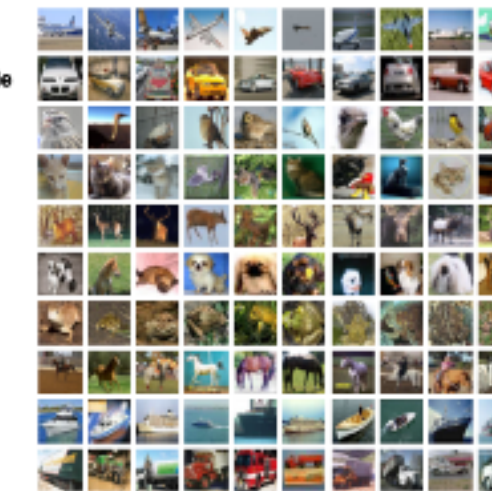
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Models on early benchmarks

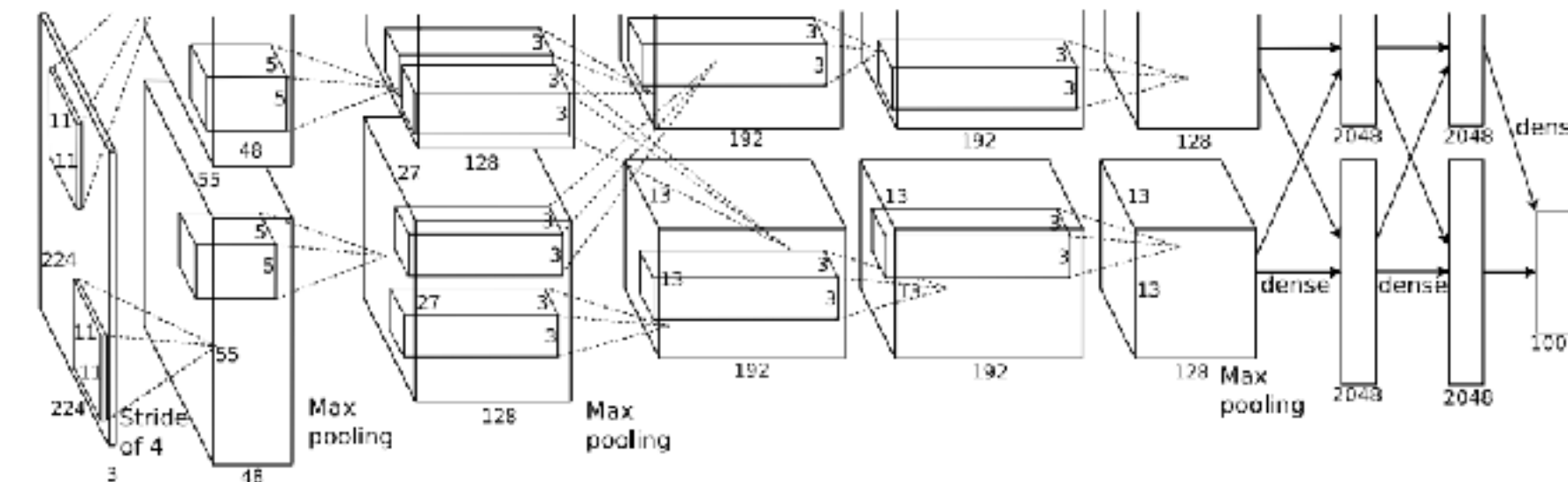
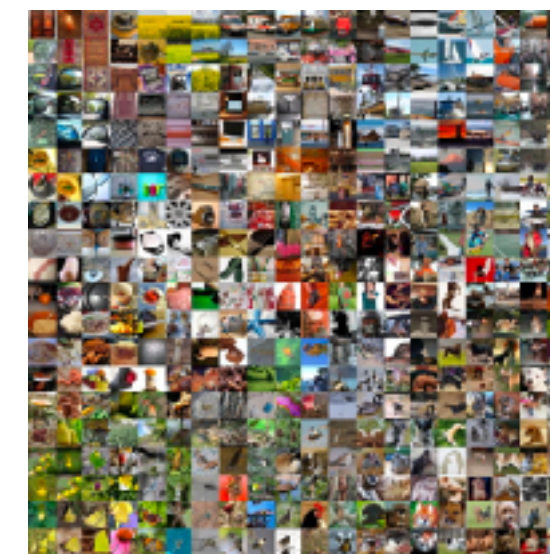


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Year
~2010

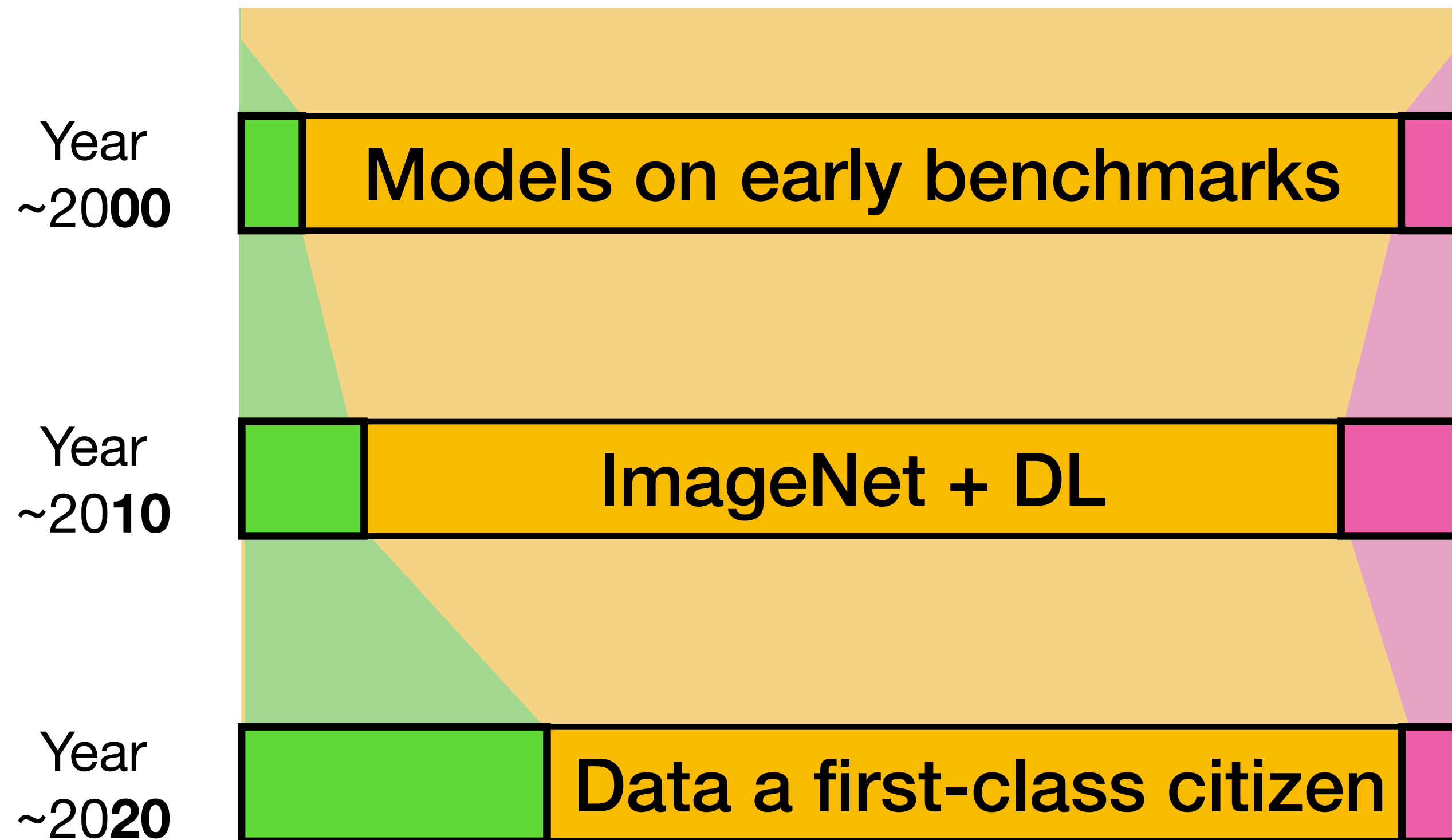
ImageNet + DL



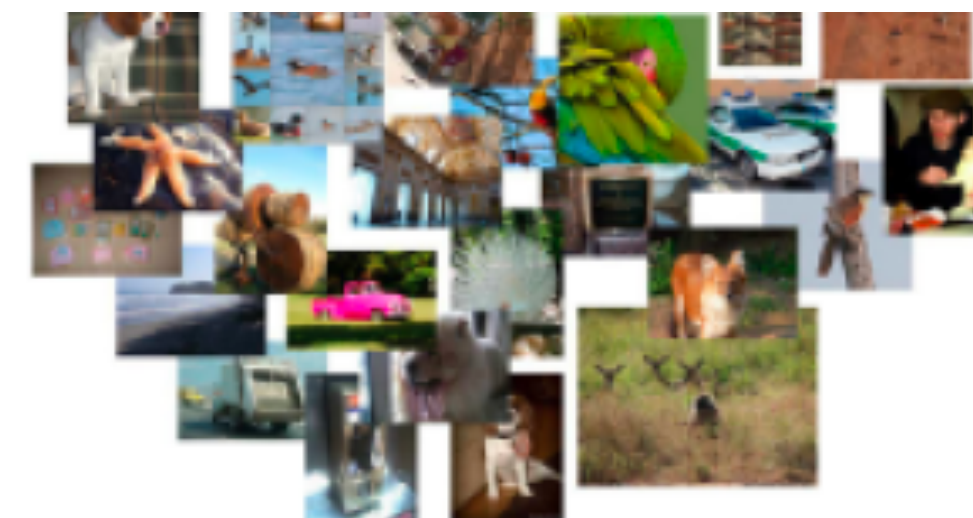
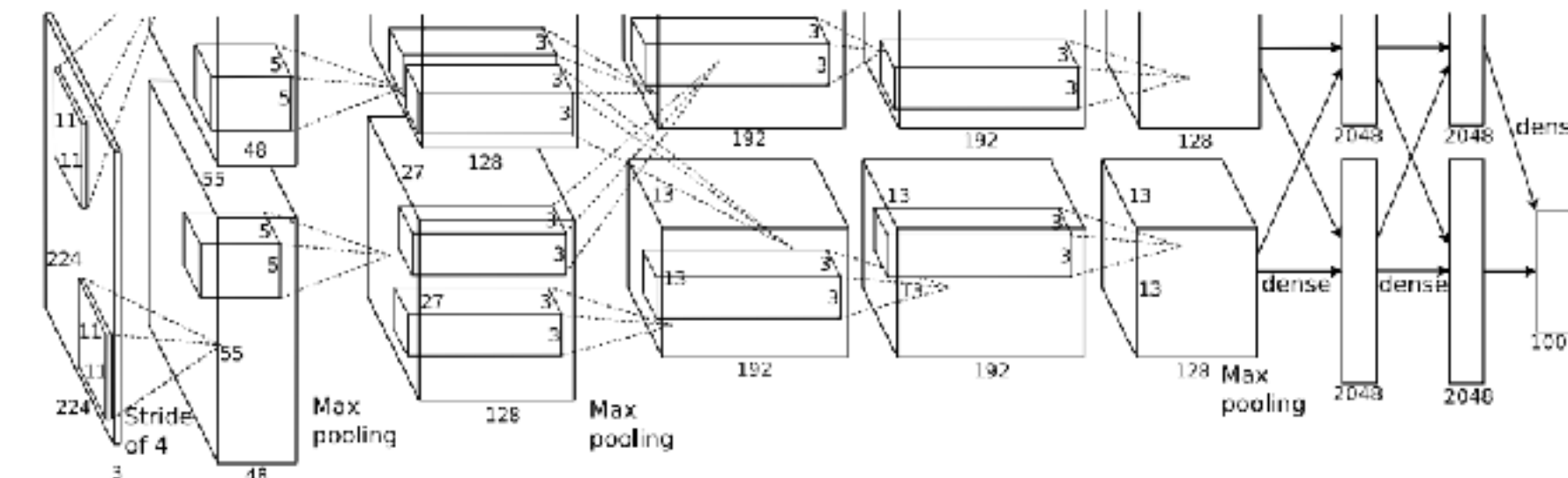
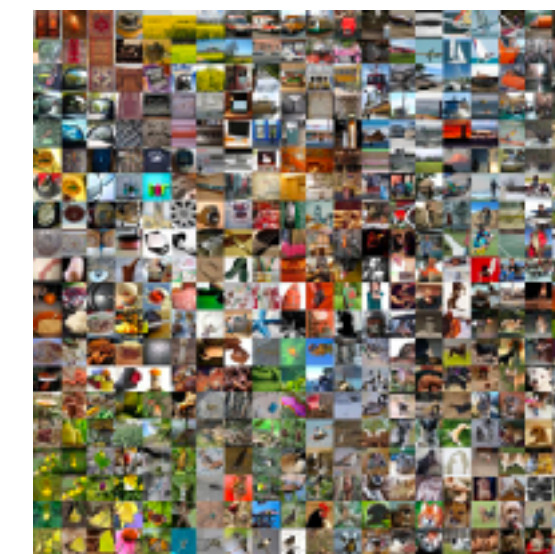
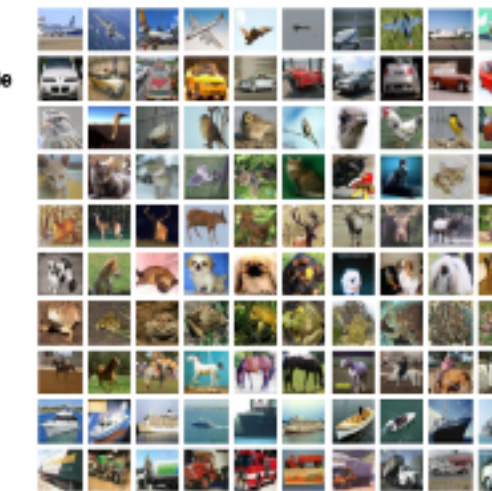
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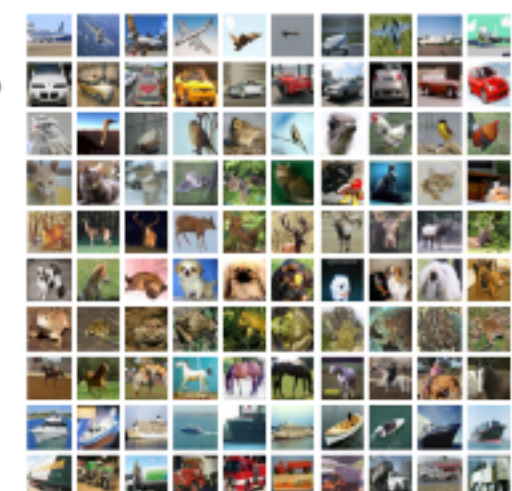
Societal consideration
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Models on early benchmarks

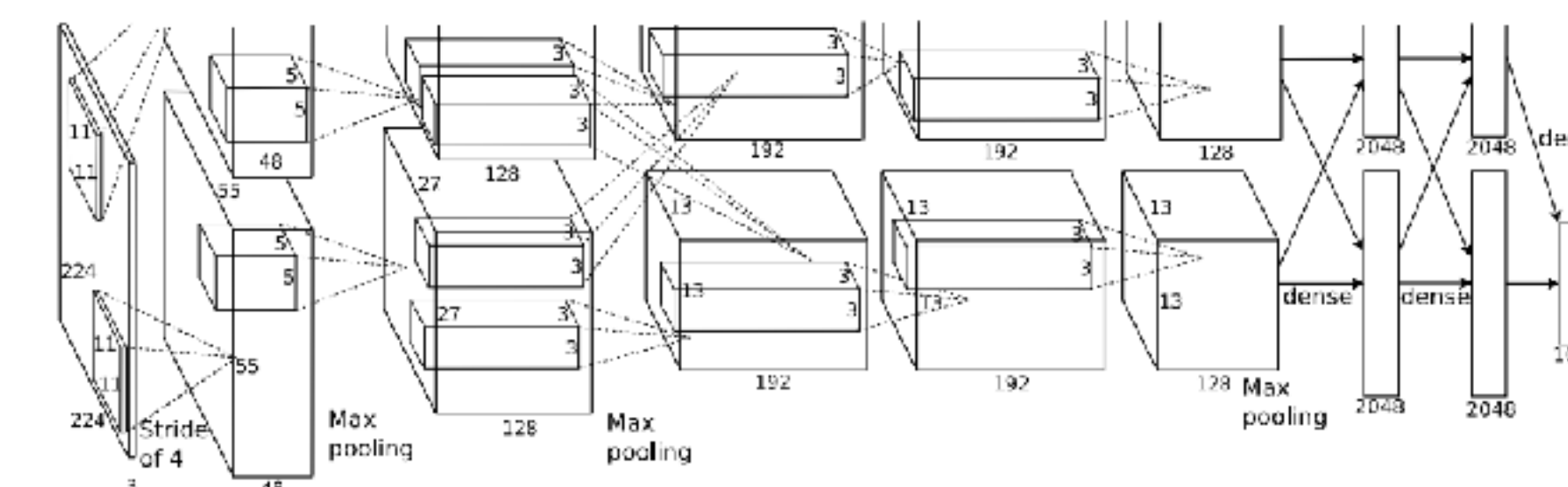
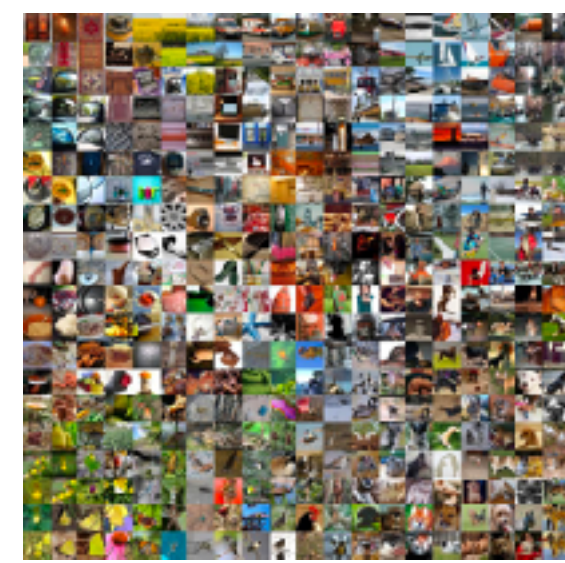


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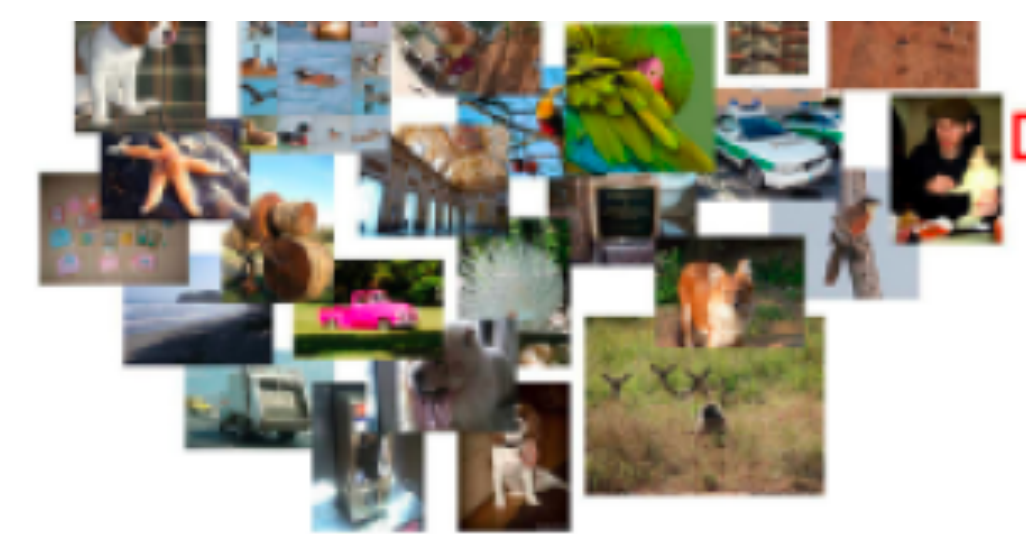
Year
~2010

ImageNet + DL



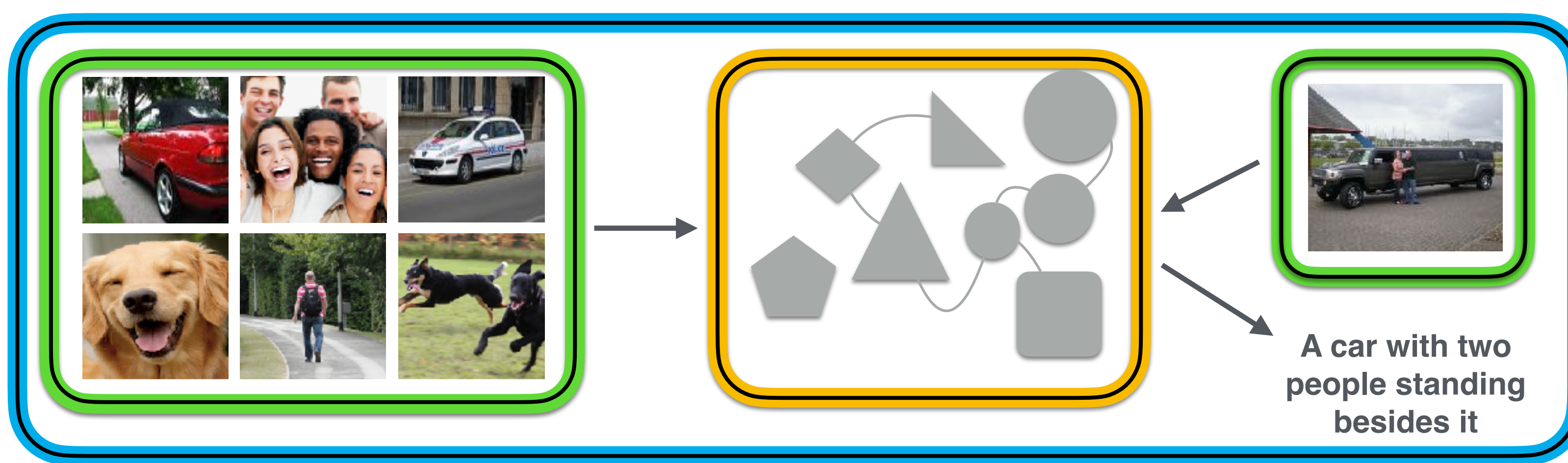
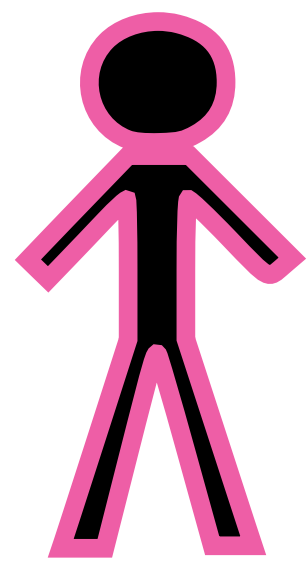
Year
~2020

Data a first-class citizen



Data \cup Models \cup Society

← Claim: now is the moment of transition



Internet data is being produced for social consumption, representing a particular slice of the world

Legal frameworks are becoming increasingly relevant: privacy, access

Other sources of data are (urgently?) needed: Photographers? Robots?...

Application-driven development (domain experts, human-AI collaborative systems)

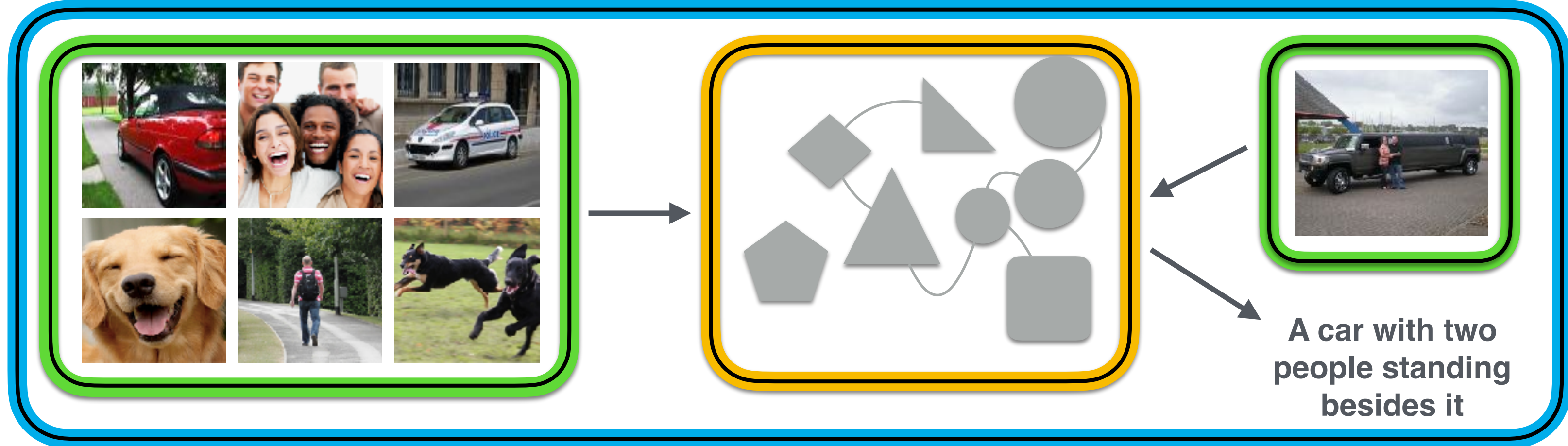
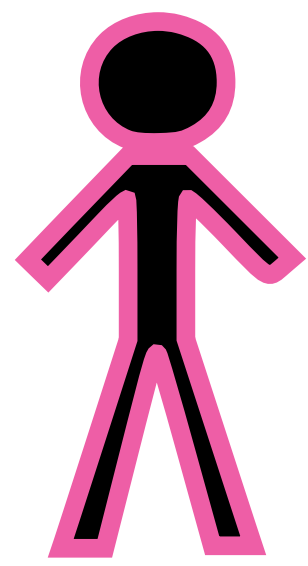
Models are being built directly for human interaction (RLHF, ...)

Evaluation becoming increasingly complex; calling for (requiring?) insights from social sciences (cog sci, sociology)

Trustworthiness (and, importantly, trust) questions increasingly central

AI systems being used not to just to *make* decisions but also to *study* society

Next generation of researchers: (1) growing reliance on engineering “insider information,” but (2) also growing need for humanistic and social science training



Dataset analysis:

[Angelina Wang, et al. ECCV'20, IJCV'22 "REVISE:..."]

[Nicole Meister, Dora Zhao, et al. ICCV'23 "Gender artifacts..."]

A new geo-diverse dataset:

[Vikram V. Ramaswamy, et al. NeurIPS D&B'23 "GeoDE:..."]

Controllable synthetic data:

[Ye Zhu, et al. NeurIPS'23 "Boundary Guided:..."]

(And lots of other work from Ye)

Explainability:

[Vikram V. Ramaswamy, et al. CVPR'23. "Overlooked factors in..."]

[Sunnie S.Y. Kim et al. CHI'23. "Help me help the AI':..."]

Evaluation:

[Xindi Wu, et al. NeurIPS D&B'24 "ConceptMix: A compositional..."]

[Angelina Wang, et al. Patterns'24 "Benchmark suites instead..."]

[Allison Chen, et al. CogSci'24 "Analyzing the roles of..."]

Trust in AI:

[Sunnie S. Y. Kim, et al. FAccT'23. "Humans, AI,..."]

[Sunnie S. Y. Kim, et al. CHI'25. "Fostering..."]

(And more from Sunnie)

AI to study society:

Led Jihoon Chung; coming soon

AI's effect on society:

[Ziv Epstein, et al. Science perspective'23. "Art and..."]

Responsible AI education:

AI4ALL nonprofit, ai-4-all.org

Data ∪ Models ∪ Society

← Claim: now is the moment of transition

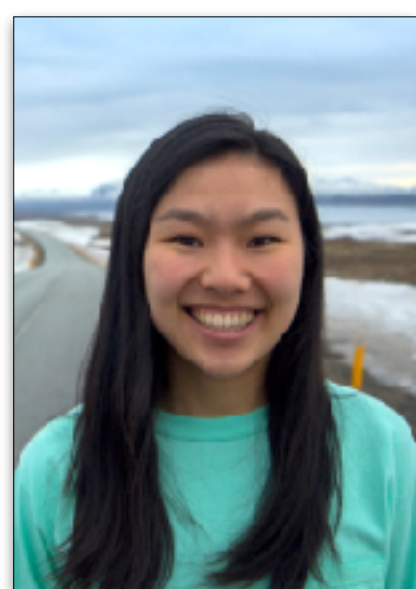
Looking forward to discussing today in the context of AI safety!

What did I get right? What did I get wrong? What should be added?

Shoutout to members of the Princeton Visual AI lab!



Dr. Vikram V. Ramaswamy
geo-diverse data;
also explainability



Dr. Angelina Wang
AI fairness



Jihoon Chung
AI to study society

Allison Chen
Cog-sci + AI



Dr. Ye Zhu
data generation



Almost Dr. Sunnie S. Y. Kim
AI trust