(This file is best viewed in presentation mode, or by navigating with left/right arrows in Chrome.)

Rosanne Liu: Highlights

- Founder of ML Collective, a nonprofit for researchers
- Founding member Uber AI (first and only woman; 15→120 in 3.5 years)
- 10 years of NN research (lead-author papers on NeurIPS, ICLR, etc.)
- Co-led a research group for 3+ years at Uber AI
- Grew a reading group to 700+ members in 2 years
- Organizer/speaker of workshops, symposiums, and other events

Full info: http://rosanneliu.com/

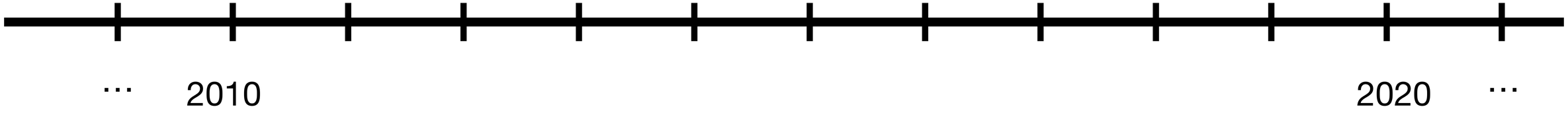
ML Collective, A nonprofit for AI researchers

ML Collective is an independent, **nonprofit** organization that performs fundamental **machine learning research** and provides opportunities for **collaboration** and **mentorship**.

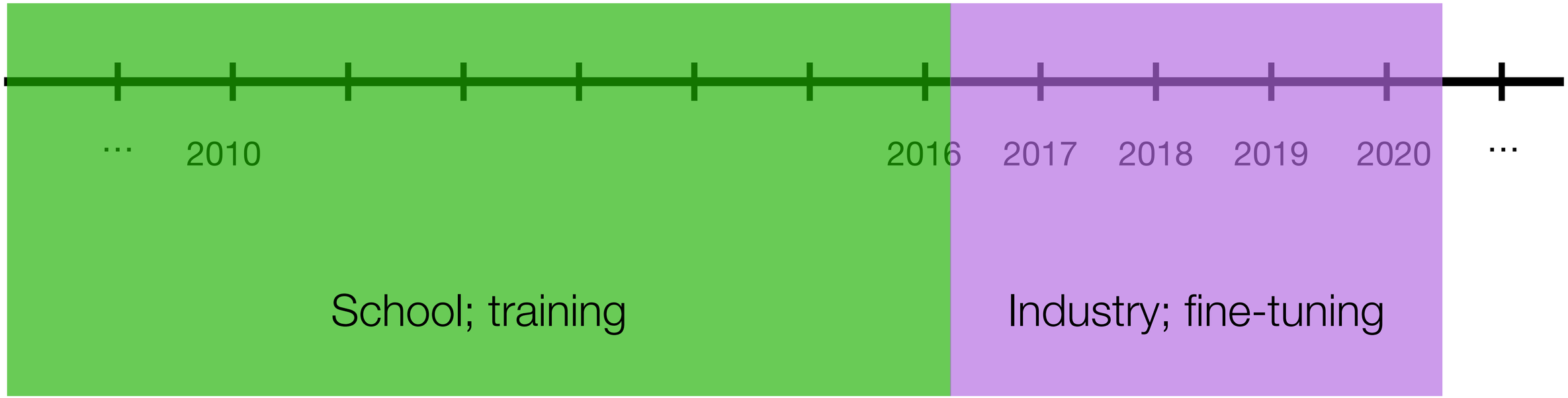
Our mission is to help unaffiliated, underrepresented, and volunteer researchers broaden and diversify their collaboration circle and develop critical skills to grow into better scientists. We believe **open collaboration** is the key to further democratizing AI.

Full info: http://mlcollective.org/

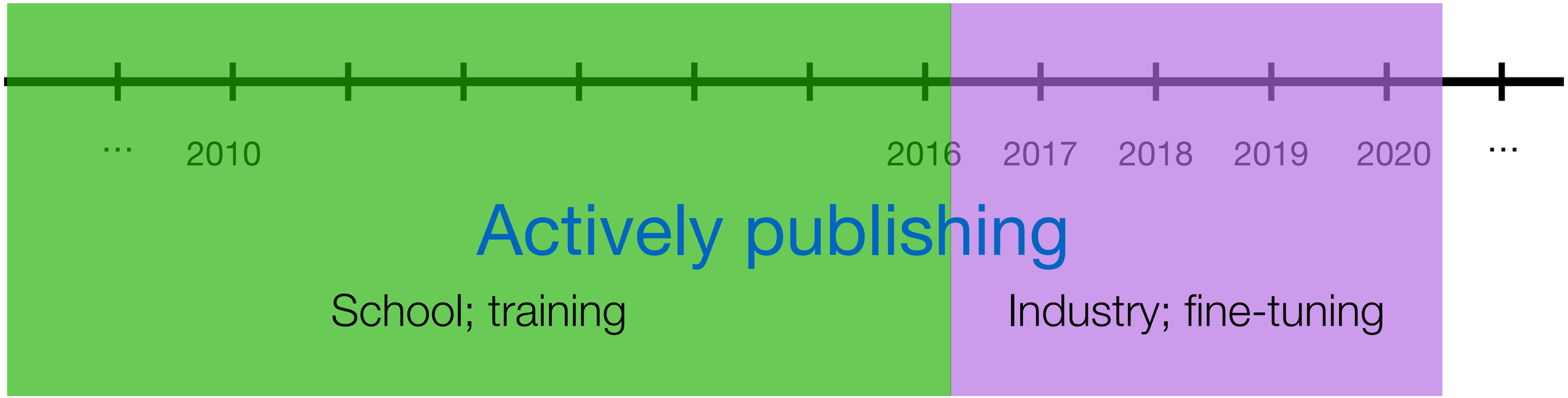
10 years of NN research



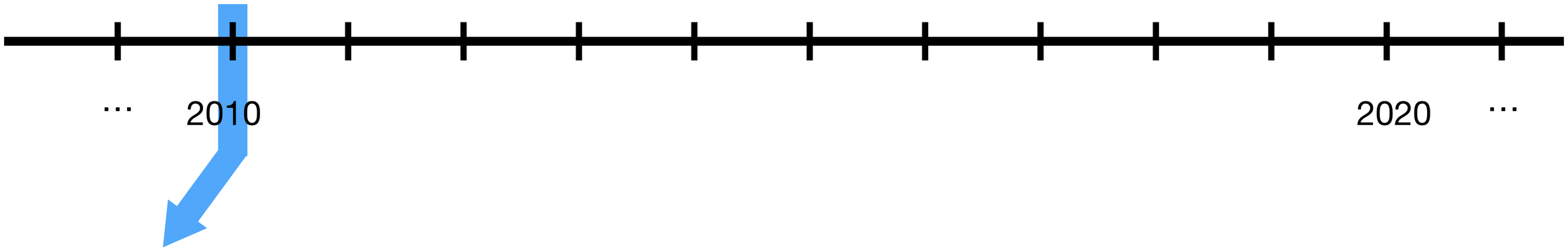
10 years of NN research



10 years of NN research

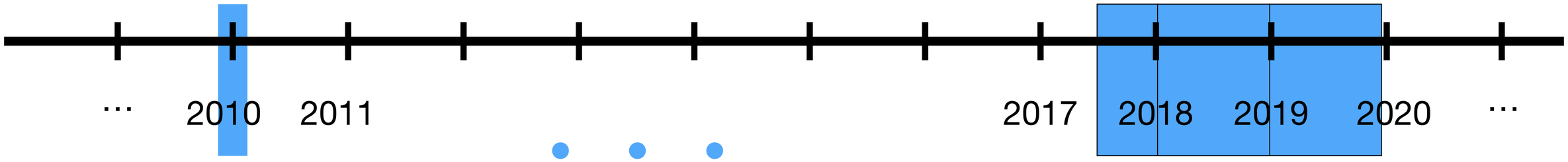


10 years of NN research

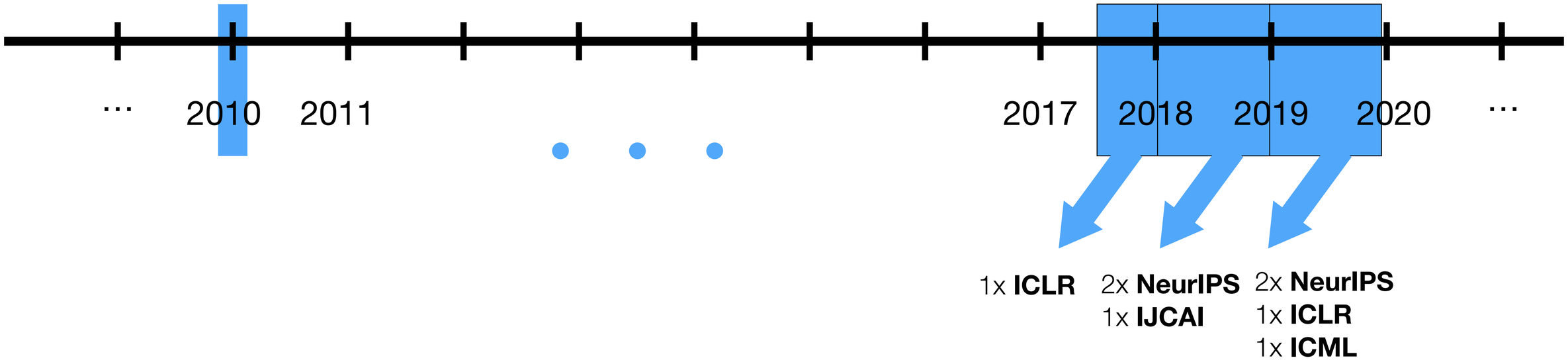


R. Liu and Y. Murphey, “Time-series temporal classification using Feature Ensemble learning,” International Joint Conference on Neural Networks (**IJCNN**), 2010.

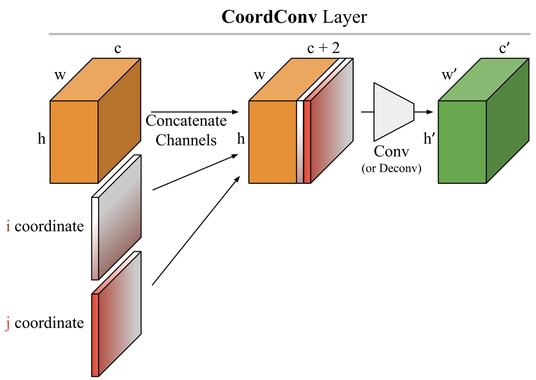
10 years of NN research



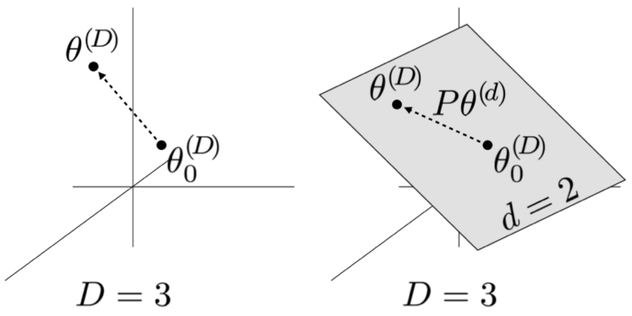
10 years of NN research



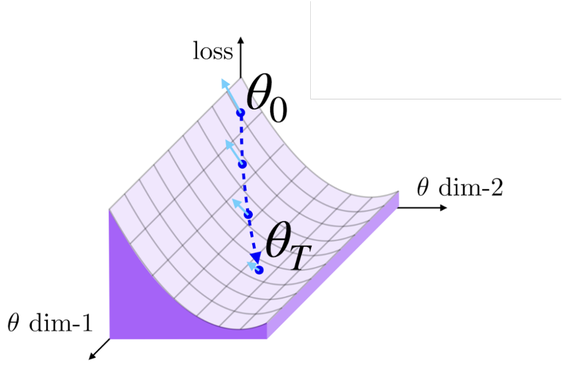
8 high quality papers in 2.5 years



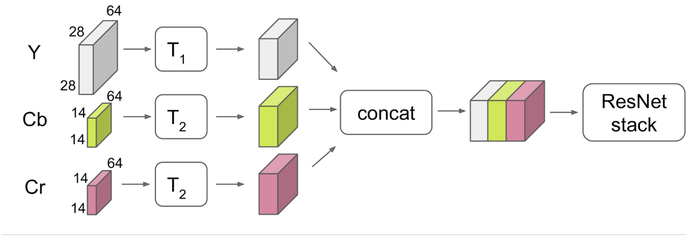
CoordConv;
NeurIPS 2018



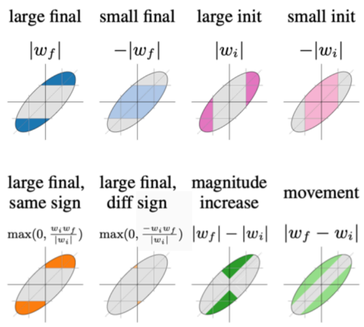
Intrinsic Dimension;
ICLR 2018



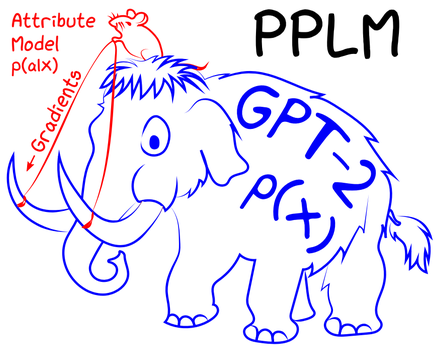
LCA;
NeurIPS 2019



JpegDNN;
NeurIPS 2018



DLT;
NeurIPS 2019



PPLM;
ICLR 2020

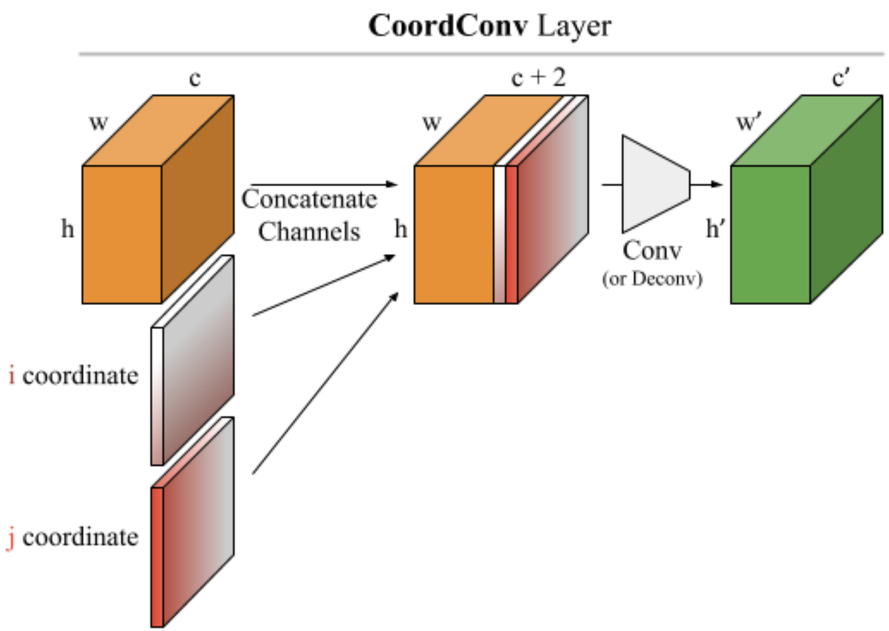
Research Philosophy

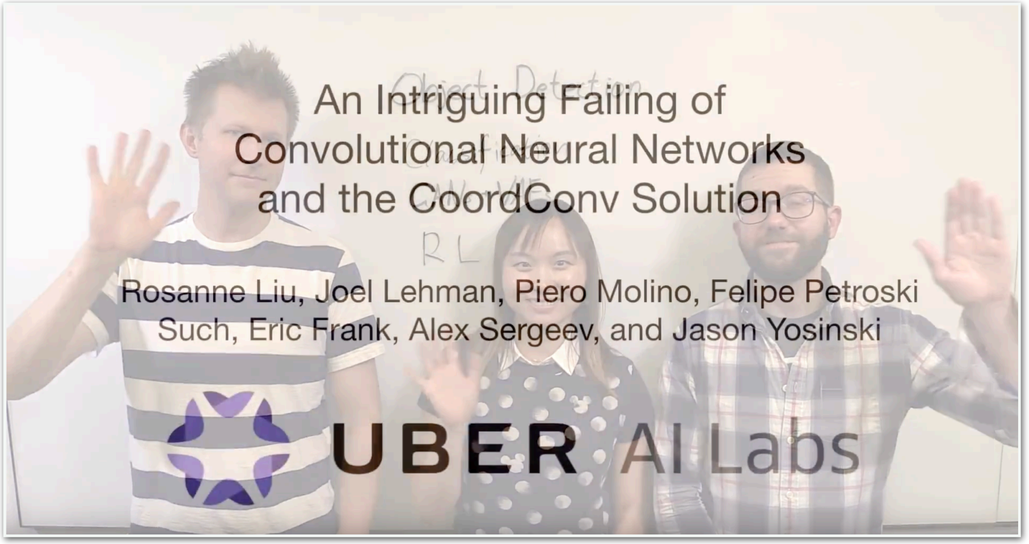
In natural science, Nature has given us a world and we're just to discover its laws. In computers, we can stuff laws into it and create a world.

– *Alan Kay*

I see my research lying in between. First we **observe** the world (from laws created by others), then we **create** better laws (that result in better worlds).

Inventor of CoordConv: a better convolution





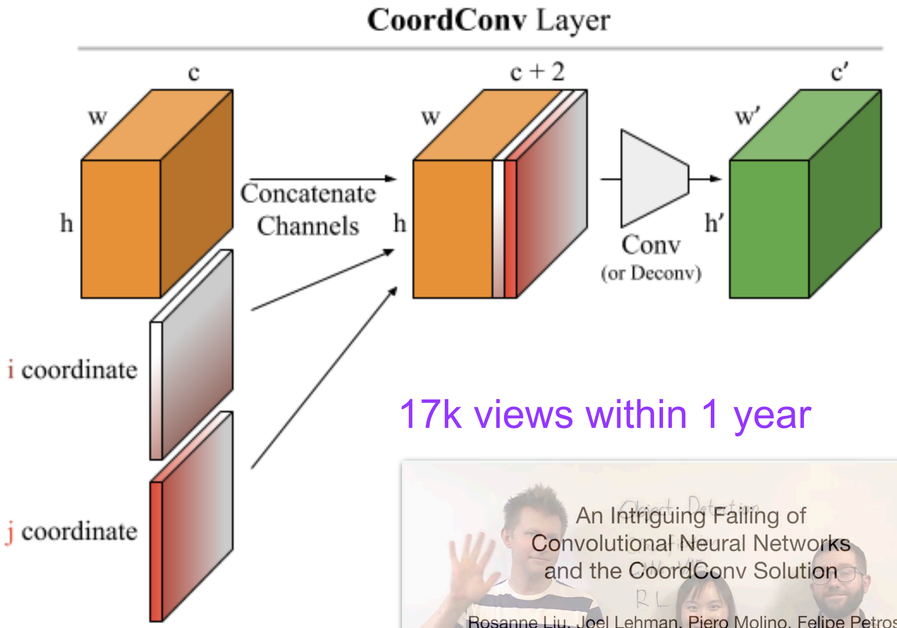
An Intriguing Failing of Convolutional Neural Networks and the CoordConv Solution

Uber AI Labs • 17K views • 1 year ago

An Intriguing Failing of Convolutional Neural Networks and the CoordConv Solution.
R. Liu, J. Lehman, P. Molino, F. P. Such, E. Frank, A. Sergeev, J. Yosinski, *NeurIPS 2018*.

Wide adoption of CoordConv

100+ citations within 1 year



17k views within 1 year

26 CoordConv implementations, extensions, and experiments based on a rough search on GitHub

(Pytorch) https://github.com/mkocabas/CoordConv-pytorch 274 stars, 40 forks
(Pytorch) https://github.com/GlastonburyC/coord-conv-pytorch 23 stars
(Pytorch) https://github.com/Wizaron/coord-conv-pytorch 36 stars, 7 forks
(Keras) https://github.com/titu1994/keras-coordconv 114 stars, 25 forks
(Pytorch) https://github.com/hjimce/CoordConv-pytorch 4 stars
(MXNet) https://github.com/ZwX1616/mxnet-CoordConv 8 stars
(Tensorflow) https://github.com/piyush2896/CoordConv-Implementation
(Chainer) https://github.com/iory/chainer_coord_conv
(Tensorflow, Theano and CNTK) https://github.com/jupyterman/Keras-implementation-of-CoordConv
(Pytorch) https://github.com/walsvid/CoordConv 21 stars / 4 forks
(Pytorch) https://github.com/r-zemblys/CoordConv
(Tensorflow, Pytorch) https://github.com/changjo/coordconv
(Pytorch) https://github.com/vfdev-5/CoordConvExperiments
(Tensorflow) https://github.com/dariocazzani/VAE-Mnist-CoordConv
(Tensorflow) https://github.com/Scorbinwen/CoordConv
(Chainer) https://github.com/hitsgub/coordconv
(Tensorflow) https://github.com/yokiqust/coordconv_fixed
(Keras) https://github.com/tchaton/CoordConv-keras

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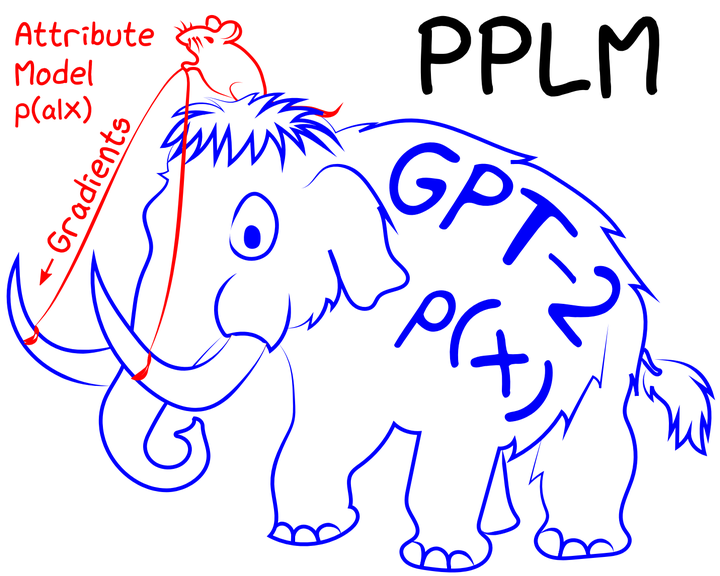
First senior author paper



🤗 × Uber AI

See all models and checkpoints

🚕 Uber AI Plug and Play Language Model (PPLM)

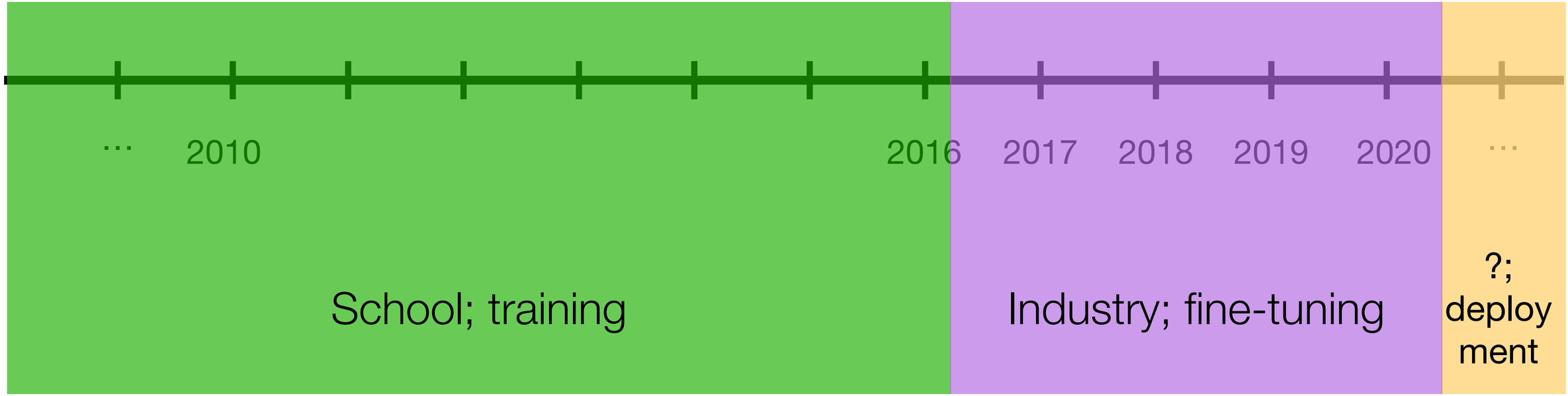
Star 23,996

PPLM builds on top of other large transformer-based generative models (like GPT-2), where it enables finer-grained control of attributes of the generated language (e.g. gradually switching topic 🐱 or sentiment 😃).

This controlled language generation method consists of plugging in simple bag-of-words or one-layer classifiers as attribute controllers, and making updates in the activation space, without changing any model parameters. Kindly implemented by the Uber AI team in 🤗 `/transformers` .

From the paper Plug and Play Language Model: A simple baseline for controlled language generation by Sumanth Dathathri, Andrea Madotto, Janice Lan, Jane Hung, Eric Frank, Piero Molino, Jason Yosinski, and Rosanne Liu.

Plug and Play Language Models: a Simple Approach to Controlled Text Generation.

Sumanth Dathathri, Andrea Madotto, Janice Lan, Jane Hung, Eric Frank, Piero Molino, Jason Yosinski, Rosanne Liu, *ICLR 2020*.

10 years of NN research