텐서플로우 생태계

https://brunch.co.kr/@synabreu/53

머신러닝, 딥러닝 도서 선택 가이드 공유합니다.

공부해야 한 알고리즘/모델, 분야에 따라 책을 빠르게 찾아보세요 :)

본 가이드는 지속적으로 업데이트되고 있습니다. :)

http://bit.ly/2HROenV

안녕하세요. 3개월동안 진행된 Neural Acceleration #2 자료를 올려드립니다. 신경망의 가속 방법을 위한 가속기, 가속 방법에 대해서 3개월 동안 다양한 분야의 분들과 스터디를 진행하였습니다. 신경망 자체를 연구하는 분야도 큰 의미가 있지만, 신경망을 사용화 화는 관점에서 가속의 연구가 갖는 의미는 개인적으로 크다고 생각합니다. 3개월 동안 스터디에 참여하여 주신 분들께 감사드리며, 기회가 되면 다음 #3때 뵙겠습니다. 스터디 진행에 도움을 주신 AI 로보틱스 코리아에 감사의 말씀을 드립니다.

- 유튜브 채널: https://www.youtube.com/channel/UCh05O9mScsWVaP3EWX1AKDQ/videos

- 스터디 자료: <https://github.com/ConstantPark/Neural-Network-Acceleration-2>

0. 헬로 딥러닝: 개발자가 아닌 분들이 들어도 어렵지 않습니다.

https://www.youtube.com/watch?v=yWySw4EfSJc

1. 딥러닝, 아무나 할 수 있다:

https://www.facebook.com/dgtgrade/posts/1597213890337471

2. 딥러닝의 "기본 원리"는 매우 단순하다:

https://www.facebook.com/dgtgrade/posts/1536461109746083

3. 요즘의 인공지능 난리에 대한 "비교적" 짧은 설명의 시도:

https://www.facebook.com/dgtgrade/posts/1440646125994249

4. 후배님으로부터 딥러닝 공부 방법을 추천해 달라는 부탁을 받고:

https://www.facebook.com/dgtgrade/posts/1340177956041067

5. 머신 러닝 공부 자료들 정리해 봤습니다:

https://www.facebook.com/dgtgrade/posts/1145680742157457

6. 선대, 미분, 통계 및 SVM, RBM 등등 이런 저런 허들들:

https://www.facebook.com/dgtgrade/posts/1328790023846527

7. 딥러닝은 휴리스틱 덩어리다:

https://www.facebook.com/dgtgrade/posts/1628524207206439

8. 셸든 녀석, 하워드 좀 그만 무시해라:

https://www.facebook.com/photo.php?fbid=1145716252153906

9. High Dimensional Data, 그리고 Data Point라는 말

https://www.facebook.com/dgtgrade/posts/1598044216921105

10. Back Propagation 알고리즘을 정확히 이해 하는게 좋겠지만:

https://www.facebook.com/dgtgrade/posts/1316988828359980

11. 신경망에서의 Loss의 개념과 Gradient Descent의 원리:

https://www.facebook.com/dgtgrade/posts/1587853294606864

13. 딥러닝 개발자가 되고 싶은데 대학원에 가는 것은 필수 아닐까요?:

https://www.facebook.com/dgtgrade/posts/1648199235238936

14. Convolution 같은 것을 신경망에 적용할 생각을 할 수 있었을까요?:

https://www.facebook.com/dgtgrade/posts/1592507747474752

15. VAE(Variational Auto Encoder)의 Loss 함수:

https://www.facebook.com/photo.php?fbid=1541286282596899

16. 요즘 컴퓨터가 인공지능으로 그림도 그리고 작곡도 한다고 한다:

https://www.facebook.com/photo.php?fbid=1586295191429341

17. 알파고 제로는 그 전전 버전인 알파고 리(Lee)와 달리:

https://www.facebook.com/dgtgrade/posts/1595680410490819

18. Andrej Karpathy: Software 2.0:

<https://www.facebook.com/dgtgrade/posts/1613655608693299>

무인편의점 구축기 :

<https://www.facebook.com/groups/TensorFlowKR/permalink/1374432022897852/>

딥러닝을 활용하여 폰트 생성:

https://www.facebook.com/groups/TensorFlowKR/permalink/1373671862973868/

문서 요약 :

<https://www.facebook.com/groups/KerasKorea/permalink/4190115487671051/>

딥러닝 주요 기술 유튜브 링크 모음

<https://github.com/Lilcob/-DL_PaperReadingMeeting?fbclid=IwAR1eEO2cVwKTbB3XH6J9Vkm5VZ52AZXK9dACldYH1D7DWLuUvjwL-XI1DXU>

오픈AI – DALL-E GPT-3 원리 사용

<http://www.aitimes.com/news/articleView.html?idxno=135460>

생성모델 정리(gan)

<https://velog.io/@tobigs-gm1>

인공지능(AI) 셀트리온 주가예측 프로그램

<http://blog.daum.net/kimgyunghyun/2593>

딥러닝 인강

<https://www.youtube.com/watch?v=_6GwLjW9sbc>

<https://youtu.be/og_aDYbF9eE>

잘 정리해줬네요~ gpt-3로 일러스트 만들기

http://www.aitimes.com/news/articleView.html?idxno=135460

딥러닝 책

<https://d2l.ai/>

구글이 Switch Transformer라는 새로운 모델을 발표했습니다. GPT-3의 파라미터는 1750억개입니다. 이 모델은 그 10배인 1.6조개의 파라미터로 구성되어 있습니다.

사람의 뉴런이 1000억개입니다. 뉴런과 뉴런을 연결하는 것은 시냅스로 모델의 파라미터와 같은 역할을 합니다. 실제 학습을 통해 배운 지능은 바로 이 시냅스에 존재합니다. 시냅스는 대략 100조개로 알려져 있습니다.

이제 딥러닝이 우리 뇌의 1/100정도까지 규모가 커졌습니다. 과연 사람과 동일한 크기가 된다면 인간과 비슷한 지능을 가지게 될까요.

<https://www.facebook.com/groups/aitutor21/permalink/1223614438051989/>

딥러닝 강의

<http://www.datamarket.kr/xe/index.php?mid=board_fpbt85&page=1&document_srl=55766>

트랜스포머관련 논문

tfkr에도 올렸는데 한분이 좋은 논문을 공유해 주셨네요ㅎㅎ <https://arxiv.org/abs/2011.04006>

Gan관련 논문

<https://arxiv.org/abs/2009.07769>

2021년 1월 기준으로 ML/DL/RL/DL 이론, 최적화 이론, 비젼/자연어 등 고급 과정을 업데이트 하였습니다.

공부 하시는데 도움이 되시길 바랍니다.

**ML 과정**

Learning Discrete Latent Structure - sta4273/csc2547 Spring'18

<https://duvenaud.github.io/learn-discrete/>

Learning to Search - csc2547 Fall'19

<https://duvenaud.github.io/learning-to-search/>

Scalable and Flexible Models of Uncertainty - csc2541

<https://csc2541-f17.github.io/>

Fundamentals of Machine Learning Over Networks - ep3260

<https://sites.google.com/view/mlons/home>

Machine Learning on Graphs - cs224w, videos

<http://web.stanford.edu/class/cs224w/>

Probabilistic Graphical Methods - 10-708

<https://www.cs.cmu.edu/~epxing/Class/10708-20/>

Mining Massive Data Sets - cs246

<http://web.stanford.edu/class/cs246/index.html>

Machine Learning for Sequential Decision Making Under Uncertainty - ee290s/cs194

<https://inst.eecs.berkeley.edu/%7Eee290s/fa18/resources.html>

Interactive Learning - cse599

<https://courses.cs.washington.edu/courses/cse599i/20wi/>

**ML Theory 과정**

Statistical Machine Learning - 10-702/36-702 with videos, 2016 videos

<https://www.stat.cmu.edu/~ryantibs/statml/>

Statistical Learning Theory - cs229T/stats231 Stanford Autumn'18-19

<http://web.stanford.edu/class/cs229t/>

Statistical Learning Theory - cs281b /stat241b UC Berkeley, Spring'14

[https://www.stat.berkeley.edu/.../2014spring-cs281bstat241b/](https://www.stat.berkeley.edu/~bartlett/courses/2014spring-cs281bstat241b/)

Statistical Learning Theory - csc2532 Uni of Toronto, Spring'20

[https://erdogdu.github.io/csc2532/](https://l.facebook.com/l.php?u=https%3A%2F%2Ferdogdu.github.io%2Fcsc2532%2F&h=AT0OMGkVr2740oahssEQ-iBBaoTs7bz48jmsJyebe1NOX36pgSpjDlvlpjqzQPQgSJbWpNKFitzqWPmBk-mPeKOxNQaJU1o4TuYuI1pk_58dvt59s703lpluNmmz0Wq6h0ld0oAYnPzmIi_2x9KY&__tn__=-UK-R&c%5b0%5d=AT0MjRF387-niuAALIivMa_4liLa3CnpgYKNjgUplRzl_WR8gugFIiec8kNK2ifIr43yijy38ccjDuvNexTKS6Z6ozkZdFriCilkPi-R-uMZC-BpBsFVQMxid0fInoS6_yfUggcYzgrk1jN7lRc6j9OujpG5MxeZ8L81jSUJwgFQhZNd6Q3PF7gJ1IJHrEWX2QAo_Y78-Q8eWIHc8uOdpmeV3LpW92IaURStfW3cF2M)

**ML Bayesian 과정**

Bayesian Data Analysis

<https://github.com/avehtari/BDA_course_Aalto>

Bayesian Methods Research Group, Moscow, Bayesian Methods in ML - spring2020, fall2020

<https://bayesgroup.ru/>

Deep Learning and Bayesian Methods - summer school, videos available for 2019 version

<http://deepbayes.ru>

**ML Systems and Operations 과정**

Stanford MLSys Seminar Series

<https://mlsys.stanford.edu/>

Visual Computing Systems- cs348v - Another systems course that discusses hardware from a persepective of visual computing but is relevant to ML as well

<http://graphics.stanford.edu/courses/cs348v-18-winter/>

Advanced Machine Learning Systems - cs6787 - lecture 9 and onwards discuss hardware side of things

<https://www.cs.cornell.edu/courses/cs6787/2019fa/>

Topics in Deployable ML - 6.S979

<https://people.csail.mit.edu/madry/6.S979/>

**DL 과정**

Deep Unsupervised Learning - cs294

<https://sites.google.com/view/berkeley-cs294-158-sp20/home>

Deep Multi-task and Meta learning - cs330

<https://cs330.stanford.edu/>

Topics in Deep Learning - stat991 UPenn/Wharton \*most chapters start with introductory topics and dig into advanced ones towards the end.

<https://github.com/dobriban/Topics-in-deep-learning>

Deep Generative Models - cs236

<https://deepgenerativemodels.github.io/>

Deep Geometric Learning of Big Data and Applications

<https://www.ipam.ucla.edu/.../workshop-iv-deep.../...>

Deep Implicit Layers - NeurIPS 2020 tutorial

<http://implicit-layers-tutorial.org/>

**DL Theory 과정**

Topics course on Mathematics of Deep Learning - CSCI-GA 3033 [https://joanbruna.github.io/MathsDL-spring19/](https://l.facebook.com/l.php?u=https%3A%2F%2Fjoanbruna.github.io%2FMathsDL-spring19%2F&h=AT0Kqc-je62Zg23xdBm_1S6Kw9VPZJ6QPy-dIVMJuS2f4FLj_-3NaEG7WDwrHKg6TWUtj83eJ29s4jJwrYy7UMkkSRebNnxQHnRyR_yyOTExrzhGjnnp3Q-TLWQIfkIaDLELhROq3HUHkIQr4ujS&__tn__=-UK-R&c%5b0%5d=AT0MjRF387-niuAALIivMa_4liLa3CnpgYKNjgUplRzl_WR8gugFIiec8kNK2ifIr43yijy38ccjDuvNexTKS6Z6ozkZdFriCilkPi-R-uMZC-BpBsFVQMxid0fInoS6_yfUggcYzgrk1jN7lRc6j9OujpG5MxeZ8L81jSUJwgFQhZNd6Q3PF7gJ1IJHrEWX2QAo_Y78-Q8eWIHc8uOdpmeV3LpW92IaURStfW3cF2M)

Topics Course on Deep Learning - stat212b [http://joanbruna.github.io/stat212b/](https://l.facebook.com/l.php?u=http%3A%2F%2Fjoanbruna.github.io%2Fstat212b%2F&h=AT0ebdg1ND1BacsgAYv2GmJfxU_pX_fRDnYkIacPHr1DgKqtXDifJDg-H_xv2RtnUG0MQD6JNd7yjfkUj5MbB11iWN0imI0RLvm1LeqbW3Z2XadY2RxKmxbJkaboOUWL3kegDvmKB6kHCV4FbczP&__tn__=-UK-R&c%5b0%5d=AT0MjRF387-niuAALIivMa_4liLa3CnpgYKNjgUplRzl_WR8gugFIiec8kNK2ifIr43yijy38ccjDuvNexTKS6Z6ozkZdFriCilkPi-R-uMZC-BpBsFVQMxid0fInoS6_yfUggcYzgrk1jN7lRc6j9OujpG5MxeZ8L81jSUJwgFQhZNd6Q3PF7gJ1IJHrEWX2QAo_Y78-Q8eWIHc8uOdpmeV3LpW92IaURStfW3cF2M)

Analyses of Deep Learning - stats385, videos from 2017 version [https://stats385.github.io/](https://l.facebook.com/l.php?u=https%3A%2F%2Fstats385.github.io%2F&h=AT2D8CnwtHViBJHXPqcdRG3GEFtNIFB0bjjYKuJ0od5wxFS4uzuvgc85dv3iK6gvBTcJpc1TPBpJ_TmQXVJr_frlONU0Ue4_BgQbkJ1dwBa4amydrVfw1pGeoyKD5LPhxbFyVOd8cnNWgpL_wRsv&__tn__=-UK-R&c%5b0%5d=AT0MjRF387-niuAALIivMa_4liLa3CnpgYKNjgUplRzl_WR8gugFIiec8kNK2ifIr43yijy38ccjDuvNexTKS6Z6ozkZdFriCilkPi-R-uMZC-BpBsFVQMxid0fInoS6_yfUggcYzgrk1jN7lRc6j9OujpG5MxeZ8L81jSUJwgFQhZNd6Q3PF7gJ1IJHrEWX2QAo_Y78-Q8eWIHc8uOdpmeV3LpW92IaURStfW3cF2M)

Mathematics of Deep Learning [http://www.vision.jhu.edu/teaching/learning/deeplearning19/](https://l.facebook.com/l.php?u=http%3A%2F%2Fwww.vision.jhu.edu%2Fteaching%2Flearning%2Fdeeplearning19%2F&h=AT1Xmr8EKdb8u_a2SRXvwh4bzCw5PoHc1DpXuqfgVgJgjdSjrEoomaNeZXvBuG_FVVzq2ZB2NdBzWfi6-2BzrmFPKuiW1StzjqSLoLVpJBOJyEwUE30GICOkXNQRt2AAibBKvf9dXoutjzp9qh0w&__tn__=-UK-R&c%5b0%5d=AT0MjRF387-niuAALIivMa_4liLa3CnpgYKNjgUplRzl_WR8gugFIiec8kNK2ifIr43yijy38ccjDuvNexTKS6Z6ozkZdFriCilkPi-R-uMZC-BpBsFVQMxid0fInoS6_yfUggcYzgrk1jN7lRc6j9OujpG5MxeZ8L81jSUJwgFQhZNd6Q3PF7gJ1IJHrEWX2QAo_Y78-Q8eWIHc8uOdpmeV3LpW92IaURStfW3cF2M)

Geometry of Deep Learning [https://www.microsoft.com/.../event/ai-institute-2019/](https://l.facebook.com/l.php?u=https%3A%2F%2Fwww.microsoft.com%2Fen-us%2Fresearch%2Fevent%2Fai-institute-2019%2F&h=AT3V7SixwYsLYxE_rwu6KUMCSPB4OuDSDAg0yaO5dGeSV7cPHxJbXritHQ4XL4e-f9rEM24uY-UIXrM2o6IDjhFsdIQJwU0UxCt4flOTfA7WEv2oo3XMUQir_HyP33vkloybFlaX9P4gJNl8NuAW&__tn__=-UK-R&c%5b0%5d=AT0MjRF387-niuAALIivMa_4liLa3CnpgYKNjgUplRzl_WR8gugFIiec8kNK2ifIr43yijy38ccjDuvNexTKS6Z6ozkZdFriCilkPi-R-uMZC-BpBsFVQMxid0fInoS6_yfUggcYzgrk1jN7lRc6j9OujpG5MxeZ8L81jSUJwgFQhZNd6Q3PF7gJ1IJHrEWX2QAo_Y78-Q8eWIHc8uOdpmeV3LpW92IaURStfW3cF2M)

**RL 이론**

Meta-Learning - ICML 2019 Tutorial , Metalearning: Applications to Data Mining - google books link [https://sites.google.com/view/icml19metalearning](https://l.facebook.com/l.php?u=https%3A%2F%2Fsites.google.com%2Fview%2Ficml19metalearning&h=AT0E-RtzHOgpC-xCUUkV3eUF5zHc6HTjpcprk6BEGtYYDHGmJrP1ac8nC2lkB324t6hWFsi9Ttj_gYm7gi0bKqMYMtLZlEvZvI9SsW1RSLrZAs9S-C8kMbDd4ZwQK60mfDLz7fLhK5x4vLjKaOl9&__tn__=-UK-R&c%5b0%5d=AT0MjRF387-niuAALIivMa_4liLa3CnpgYKNjgUplRzl_WR8gugFIiec8kNK2ifIr43yijy38ccjDuvNexTKS6Z6ozkZdFriCilkPi-R-uMZC-BpBsFVQMxid0fInoS6_yfUggcYzgrk1jN7lRc6j9OujpG5MxeZ8L81jSUJwgFQhZNd6Q3PF7gJ1IJHrEWX2QAo_Y78-Q8eWIHc8uOdpmeV3LpW92IaURStfW3cF2M)

Deep Multi-Task and Meta Learning - cs330, videos [http://cs330.stanford.edu/](https://l.facebook.com/l.php?u=http%3A%2F%2Fcs330.stanford.edu%2F&h=AT07lteorjMhVFOqS8lvcXx-OqAPhqJ52a1KXKmDCtRyxg1aVN5JPj5Re6AyyDdCswua2CYRM1SxPWMg6ayG7CldmP8AX6yiF4SRgI1Dd9pMcyCKzKTjmsbVs2WdpJQUNQJOpeoAQjZIKJBCAx5s&__tn__=-UK-R&c%5b0%5d=AT0MjRF387-niuAALIivMa_4liLa3CnpgYKNjgUplRzl_WR8gugFIiec8kNK2ifIr43yijy38ccjDuvNexTKS6Z6ozkZdFriCilkPi-R-uMZC-BpBsFVQMxid0fInoS6_yfUggcYzgrk1jN7lRc6j9OujpG5MxeZ8L81jSUJwgFQhZNd6Q3PF7gJ1IJHrEWX2QAo_Y78-Q8eWIHc8uOdpmeV3LpW92IaURStfW3cF2M)

Deep Reinforcement Learning - cs285 [http://rail.eecs.berkeley.edu/deeprlcourse/](https://l.facebook.com/l.php?u=http%3A%2F%2Frail.eecs.berkeley.edu%2Fdeeprlcourse%2F&h=AT0phEGV2mwSIQYbPil69tVzwzW6Ge4GvTlxhsUXyQRw5Arb2qngWKytnkJNfNzeBJDajYC10-KV7lWMO5c7nv-Ta_aNXOcUmOU27UhjIKrNgZsrK8pGjn8yrZmNQeHR37o0CBEqUrAhiNWHHKJg&__tn__=-UK-R&c%5b0%5d=AT0MjRF387-niuAALIivMa_4liLa3CnpgYKNjgUplRzl_WR8gugFIiec8kNK2ifIr43yijy38ccjDuvNexTKS6Z6ozkZdFriCilkPi-R-uMZC-BpBsFVQMxid0fInoS6_yfUggcYzgrk1jN7lRc6j9OujpG5MxeZ8L81jSUJwgFQhZNd6Q3PF7gJ1IJHrEWX2QAo_Y78-Q8eWIHc8uOdpmeV3LpW92IaURStfW3cF2M)

Advanced robotics - cs287 [https://people.eecs.berkeley.edu/%7Epabbeel/cs287-fa19/](https://l.facebook.com/l.php?u=https%3A%2F%2Fpeople.eecs.berkeley.edu%2F%257Epabbeel%2Fcs287-fa19%2F&h=AT01XHPfX26lwEdBwUovFBctnMNe0M4nODyYWXkoqaedgrgBi_-74Q2UqxFg05XGYKkYR2xT99wU9YOfw27rprPKEYOn_pffxIgkg6Nd5CIOOujEHb0ktkbdPqMrJt6aeX7SPDFfVi4MWE04C3sA&__tn__=-UK-R&c%5b0%5d=AT0MjRF387-niuAALIivMa_4liLa3CnpgYKNjgUplRzl_WR8gugFIiec8kNK2ifIr43yijy38ccjDuvNexTKS6Z6ozkZdFriCilkPi-R-uMZC-BpBsFVQMxid0fInoS6_yfUggcYzgrk1jN7lRc6j9OujpG5MxeZ8L81jSUJwgFQhZNd6Q3PF7gJ1IJHrEWX2QAo_Y78-Q8eWIHc8uOdpmeV3LpW92IaURStfW3cF2M)

Reinforcement Learning - cs234, videos for 2019 run [https://web.stanford.edu/class/cs234/](https://l.facebook.com/l.php?u=https%3A%2F%2Fweb.stanford.edu%2Fclass%2Fcs234%2F&h=AT1xOg4V1qKYLG3i-dAvFX1Evto7uNN8cngMbpNaKvEtOqmESPjXLQIe87bQia4b0OkkNrYAoc41rMPMUGHx-gmLg-zK2dWRR384LTQMxlG7OkmtSJxzxv9VKf1J-_ZIkM873d7oYGa4LWaCtxiO&__tn__=-UK-R&c%5b0%5d=AT0MjRF387-niuAALIivMa_4liLa3CnpgYKNjgUplRzl_WR8gugFIiec8kNK2ifIr43yijy38ccjDuvNexTKS6Z6ozkZdFriCilkPi-R-uMZC-BpBsFVQMxid0fInoS6_yfUggcYzgrk1jN7lRc6j9OujpG5MxeZ8L81jSUJwgFQhZNd6Q3PF7gJ1IJHrEWX2QAo_Y78-Q8eWIHc8uOdpmeV3LpW92IaURStfW3cF2M)

Reinforcement Learning Summer School 2019: Bandits, RL & Deep RL [https://rlss.inria.fr/program/](https://l.facebook.com/l.php?u=https%3A%2F%2Frlss.inria.fr%2Fprogram%2F&h=AT1D1Oizh98mplcbBhOLSkHmlFayz3KcFDdRVomngtQekZLrDCcFATAVX7ZQJ1YEKfDV4JEK5LIt7wESCcQvcDYYfHw-z92DRh8DOcvUfQr-XMQsw0EftC-FiNNusUOejF1HqRjzalDluYUSQn3_&__tn__=-UK-R&c%5b0%5d=AT0MjRF387-niuAALIivMa_4liLa3CnpgYKNjgUplRzl_WR8gugFIiec8kNK2ifIr43yijy38ccjDuvNexTKS6Z6ozkZdFriCilkPi-R-uMZC-BpBsFVQMxid0fInoS6_yfUggcYzgrk1jN7lRc6j9OujpG5MxeZ8L81jSUJwgFQhZNd6Q3PF7gJ1IJHrEWX2QAo_Y78-Q8eWIHc8uOdpmeV3LpW92IaURStfW3cF2M)

**Optimization 과정**

Convex Optimization I - ee364a, has quite recent videos too. Convex Optimization II - ee364b, 2008 videos [http://stanford.edu/class/ee364a/](https://l.facebook.com/l.php?u=http%3A%2F%2Fstanford.edu%2Fclass%2Fee364a%2F&h=AT2nnvhsUQSzcwWxkd0fq2ZrTR50mWX38kiZvfp--gh3wxtA1jrbqWe0JKR9Hm1K0Bu__O-NDmQdP_yWSTMtcs7uw-bYRv6rwGg4146t5sQiPyV1_FVZ2hy7yLN_QaDdSa_6uwNZ0GADDCVElaNH&__tn__=-UK-R&c%5b0%5d=AT0MjRF387-niuAALIivMa_4liLa3CnpgYKNjgUplRzl_WR8gugFIiec8kNK2ifIr43yijy38ccjDuvNexTKS6Z6ozkZdFriCilkPi-R-uMZC-BpBsFVQMxid0fInoS6_yfUggcYzgrk1jN7lRc6j9OujpG5MxeZ8L81jSUJwgFQhZNd6Q3PF7gJ1IJHrEWX2QAo_Y78-Q8eWIHc8uOdpmeV3LpW92IaURStfW3cF2M)

Convex Optimization and Approximation - ee227c [https://ee227c.github.io/](https://l.facebook.com/l.php?u=https%3A%2F%2Fee227c.github.io%2F&h=AT0u8djC21qC9scv0mzimEyRVCXTtGeLU1euLEMQvq7jpd1B9us0_Xdfgl65BQToL2j_OYzN3wKCyDN9AHlS_-OFOsC6Q9xkUQ4Xic5oXaZQAv1B11CA16vnqOkNqUm5KZUFuFU0q60IRTLIG9K_&__tn__=-UK-R&c%5b0%5d=AT0MjRF387-niuAALIivMa_4liLa3CnpgYKNjgUplRzl_WR8gugFIiec8kNK2ifIr43yijy38ccjDuvNexTKS6Z6ozkZdFriCilkPi-R-uMZC-BpBsFVQMxid0fInoS6_yfUggcYzgrk1jN7lRc6j9OujpG5MxeZ8L81jSUJwgFQhZNd6Q3PF7gJ1IJHrEWX2QAo_Y78-Q8eWIHc8uOdpmeV3LpW92IaURStfW3cF2M)

Convex Optimization - ee227bt [https://people.eecs.berkeley.edu/.../EE227BT/index.html](https://l.facebook.com/l.php?u=https%3A%2F%2Fpeople.eecs.berkeley.edu%2F%257Eelghaoui%2FTeaching%2FEE227BT%2Findex.html&h=AT3Z_uBhWHrwoJvtE3i4B_navI-iwUhL_cLkWDUBIIbWsLzHeAWA8CCIJTQX_FJb1XmfcA93gKDYm0TDtJKLEZuTDgtybVG3EycPu_WkQTZOaYtcLUFHI1GGoAF5PEdax9BRoBv71uCB3MElrqGQ&__tn__=-UK-R&c%5b0%5d=AT0MjRF387-niuAALIivMa_4liLa3CnpgYKNjgUplRzl_WR8gugFIiec8kNK2ifIr43yijy38ccjDuvNexTKS6Z6ozkZdFriCilkPi-R-uMZC-BpBsFVQMxid0fInoS6_yfUggcYzgrk1jN7lRc6j9OujpG5MxeZ8L81jSUJwgFQhZNd6Q3PF7gJ1IJHrEWX2QAo_Y78-Q8eWIHc8uOdpmeV3LpW92IaURStfW3cF2M)

Variational Methods for Computer Vision [https://vision.in.tum.de/teaching/ws2013/vmcv2013](https://l.facebook.com/l.php?u=https%3A%2F%2Fvision.in.tum.de%2Fteaching%2Fws2013%2Fvmcv2013&h=AT13qkp3dxbegwGFbFc1ceVb02kPq8KXOYTOOxiV-1MpBTY2LB0zHoq7LttEKPI1cdThSMXC3ablqNk8uh2CVe9Ps5mqjKF_WM9tNgYs-vozsVgMLmnF6kyyNjagjGxlj4U3GZ6qcG1fCi45kHpx&__tn__=-UK-R&c%5b0%5d=AT0MjRF387-niuAALIivMa_4liLa3CnpgYKNjgUplRzl_WR8gugFIiec8kNK2ifIr43yijy38ccjDuvNexTKS6Z6ozkZdFriCilkPi-R-uMZC-BpBsFVQMxid0fInoS6_yfUggcYzgrk1jN7lRc6j9OujpG5MxeZ8L81jSUJwgFQhZNd6Q3PF7gJ1IJHrEWX2QAo_Y78-Q8eWIHc8uOdpmeV3LpW92IaURStfW3cF2M)

Advanced Optimization and Randomized Algorithms - 10-801, videos [http://www.cs.cmu.edu/%7Esuvrit/teach/index.html](https://l.facebook.com/l.php?u=http%3A%2F%2Fwww.cs.cmu.edu%2F%257Esuvrit%2Fteach%2Findex.html&h=AT2-aLpq2zes9BTgwOG_9FqQSYK243UcKOIb_BDYCtlEPRPxmVIQRYEjHtEE9vkIXCn_-RlLciJFlwibebE33sNUUrZC9U2sCuO2M-aGE3Paln7OIJUJu5pFSckzqk7Mr_6VIwQ0lqIjzt_zH1TE&__tn__=-UK-R&c%5b0%5d=AT0MjRF387-niuAALIivMa_4liLa3CnpgYKNjgUplRzl_WR8gugFIiec8kNK2ifIr43yijy38ccjDuvNexTKS6Z6ozkZdFriCilkPi-R-uMZC-BpBsFVQMxid0fInoS6_yfUggcYzgrk1jN7lRc6j9OujpG5MxeZ8L81jSUJwgFQhZNd6Q3PF7gJ1IJHrEWX2QAo_Y78-Q8eWIHc8uOdpmeV3LpW92IaURStfW3cF2M)

Optimization Methods for Machine Learning and Engineering - Karlsruhe Institute of Technology [https://www.youtube.com/playlist...](https://l.facebook.com/l.php?u=https%3A%2F%2Fwww.youtube.com%2Fplaylist%3Flist%3DPLdkTDauaUnQpzuOCZyUUZc0lxf4-PXNR5&h=AT0mkZvvp0dgPYtAtB2dmgn0kAewsBBIUHjvUvWcI9BYoWHNEaUDlGeVxCPquf_mEtESbSEg6xGa7rqDAqPl0def0IMptzjKu_5_lQxF83NRmX6DxHpmYq5XY0H2eGx2E-ZayxJ7QVpimzWwON2Z&__tn__=-UK-R&c%5b0%5d=AT0MjRF387-niuAALIivMa_4liLa3CnpgYKNjgUplRzl_WR8gugFIiec8kNK2ifIr43yijy38ccjDuvNexTKS6Z6ozkZdFriCilkPi-R-uMZC-BpBsFVQMxid0fInoS6_yfUggcYzgrk1jN7lRc6j9OujpG5MxeZ8L81jSUJwgFQhZNd6Q3PF7gJ1IJHrEWX2QAo_Y78-Q8eWIHc8uOdpmeV3LpW92IaURStfW3cF2M)

**Applications Computer Vision 과정**

Computational Video Manipulation - cs448v [https://magrawala.github.io/cs448v-sp19/](https://l.facebook.com/l.php?u=https%3A%2F%2Fmagrawala.github.io%2Fcs448v-sp19%2F&h=AT1LSPRbF9ggxpythWwEuNC_WwMeHMvfIEa7I3BE2gGFnoxmlJkEPq-tFUknoJrvvKboRyb3iDOXTV0lFayM6ObPf-2q31h3-cKgZ4oHKKFqKuObdW92Gr_asF9qvSqScWj1cjlcRUHT2g7mVawk&__tn__=-UK-R&c%5b0%5d=AT0MjRF387-niuAALIivMa_4liLa3CnpgYKNjgUplRzl_WR8gugFIiec8kNK2ifIr43yijy38ccjDuvNexTKS6Z6ozkZdFriCilkPi-R-uMZC-BpBsFVQMxid0fInoS6_yfUggcYzgrk1jN7lRc6j9OujpG5MxeZ8L81jSUJwgFQhZNd6Q3PF7gJ1IJHrEWX2QAo_Y78-Q8eWIHc8uOdpmeV3LpW92IaURStfW3cF2M)

Advanced Topics in ML: Modeling and Segmentation of Multivariate Mixed Data [http://www.vision.jhu.edu/teaching/learning/learning10/](https://l.facebook.com/l.php?u=http%3A%2F%2Fwww.vision.jhu.edu%2Fteaching%2Flearning%2Flearning10%2F&h=AT3y2EpaitGQee5t580_qTw34Xgmy4xGyQjvUkQhz-LzjhXpDu1O1jTdDnMnRQUGj7NqxkZPIJJcxhY0rodYHt5sS2ae_KOB0Nf-KKhYf4pUyxZDQ0nIItZUDFx1DlWaaHimr0AKHkjjfzu--RUH&__tn__=-UK-R&c%5b0%5d=AT0MjRF387-niuAALIivMa_4liLa3CnpgYKNjgUplRzl_WR8gugFIiec8kNK2ifIr43yijy38ccjDuvNexTKS6Z6ozkZdFriCilkPi-R-uMZC-BpBsFVQMxid0fInoS6_yfUggcYzgrk1jN7lRc6j9OujpG5MxeZ8L81jSUJwgFQhZNd6Q3PF7gJ1IJHrEWX2QAo_Y78-Q8eWIHc8uOdpmeV3LpW92IaURStfW3cF2M)

TUM AI Guest lecture series - many influential researchers in DL, vision, graphics talk about latest advances and their latest works. [https://www.youtube.com/playlist...](https://l.facebook.com/l.php?u=https%3A%2F%2Fwww.youtube.com%2Fplaylist%3Flist%3DPLQ8Y4kIIbzy8kMlz7cRqz-BjbdyWsfLXt&h=AT1_3OH3Plf7Du29PaD0OIJ8IFIaWltfRAihUgTuxOIpm57968xnpzif6gJeoMmanO3-lydVA1n6criPiDPmucmp-gqdmfQuAVdCRnfzNLlcyNPAnBt9YPDKV8CKOrj2cKyMLdDHx2NS6JjU_Z7W&__tn__=-UK-R&c%5b0%5d=AT0MjRF387-niuAALIivMa_4liLa3CnpgYKNjgUplRzl_WR8gugFIiec8kNK2ifIr43yijy38ccjDuvNexTKS6Z6ozkZdFriCilkPi-R-uMZC-BpBsFVQMxid0fInoS6_yfUggcYzgrk1jN7lRc6j9OujpG5MxeZ8L81jSUJwgFQhZNd6Q3PF7gJ1IJHrEWX2QAo_Y78-Q8eWIHc8uOdpmeV3LpW92IaURStfW3cF2M)

Advanced Deep Learning for Computer Vision - TUM ADL4CV [https://www.youtube.com/playlist...](https://l.facebook.com/l.php?u=https%3A%2F%2Fwww.youtube.com%2Fplaylist%3Flist%3DPLog3nOPCjKBkngkkF552-Hiwa5t_ZeDnh&h=AT3dYCZArjixzGBC6Uzxb9wTV_C3s-UPjxahYwQQCmhvy3kY_Sh7eEflyhx6JxHdAb4kmgSRTkz7NxvRtH4MP43LBox2aIwrSNv3lwVsFnTJcA0p25Tj-UqYml9dayyd2p1yrhet5UcY-QvegxtD&__tn__=-UK-R&c%5b0%5d=AT0MjRF387-niuAALIivMa_4liLa3CnpgYKNjgUplRzl_WR8gugFIiec8kNK2ifIr43yijy38ccjDuvNexTKS6Z6ozkZdFriCilkPi-R-uMZC-BpBsFVQMxid0fInoS6_yfUggcYzgrk1jN7lRc6j9OujpG5MxeZ8L81jSUJwgFQhZNd6Q3PF7gJ1IJHrEWX2QAo_Y78-Q8eWIHc8uOdpmeV3LpW92IaURStfW3cF2M)

Detection, Segmentation and Tracking - TUM CV3DST [https://www.youtube.com/playlist...](https://l.facebook.com/l.php?u=https%3A%2F%2Fwww.youtube.com%2Fplaylist%3Flist%3DPLog3nOPCjKBneGyffEktlXXMfv1OtKmCs&h=AT2TEwltq9eaHMvRarLfzfnXb7DvzJYXNUqavd3HXVNW_T1Vem024SJyRYv9Cp34Ng-Bm63DANLHfg-bYfEtiE0bRUxgyxxxDODwNplKi9dN3_y1tNxIwl1H1czRdkNg0XpnRACdeqmpkobBdBsd&__tn__=-UK-R&c%5b0%5d=AT0MjRF387-niuAALIivMa_4liLa3CnpgYKNjgUplRzl_WR8gugFIiec8kNK2ifIr43yijy38ccjDuvNexTKS6Z6ozkZdFriCilkPi-R-uMZC-BpBsFVQMxid0fInoS6_yfUggcYzgrk1jN7lRc6j9OujpG5MxeZ8L81jSUJwgFQhZNd6Q3PF7gJ1IJHrEWX2QAo_Y78-Q8eWIHc8uOdpmeV3LpW92IaURStfW3cF2M)

Guest lectures at TUM Dynamic Vision and Learning group [https://www.youtube.com/playlist...](https://l.facebook.com/l.php?u=https%3A%2F%2Fwww.youtube.com%2Fplaylist%3Flist%3DPLog3nOPCjKBnAuymJ7uTysuG357zVn7et&h=AT13O83DaOtBN5jHnvA1z1SpaKOwX2GxciEsKB_jBscal-ukoIJ1eoW_QMzoecU0SDzStitMk_pVG9E0L49zLo8d1Jkt_2Jd2shKrZt6jk6QtFhza36hj7kkBfHnau0Ro3SNP47j1F5vkB-glvL_&__tn__=-UK-R&c%5b0%5d=AT0MjRF387-niuAALIivMa_4liLa3CnpgYKNjgUplRzl_WR8gugFIiec8kNK2ifIr43yijy38ccjDuvNexTKS6Z6ozkZdFriCilkPi-R-uMZC-BpBsFVQMxid0fInoS6_yfUggcYzgrk1jN7lRc6j9OujpG5MxeZ8L81jSUJwgFQhZNd6Q3PF7gJ1IJHrEWX2QAo_Y78-Q8eWIHc8uOdpmeV3LpW92IaURStfW3cF2M)

Vision Seminar at MIT [https://www.youtube.com/.../UCLMiFkFyfcNnZs6iwYLPI9g/videos](https://l.facebook.com/l.php?u=https%3A%2F%2Fwww.youtube.com%2Fchannel%2FUCLMiFkFyfcNnZs6iwYLPI9g%2Fvideos&h=AT3eQ-ZLJOLSy5yg8mukX8yedZhI45pLAqbyxxTao8R9chExPQJFqaPhVb8JjItXrY2gRZX1VZajmnPG2W0BeRVo_NAJFGGLtWKRhYEmbt5bmJd1HPIwNd4vUwKFl6Sb9F12yvjW0Yvm3hwBVyYN&__tn__=-UK-R&c%5b0%5d=AT0MjRF387-niuAALIivMa_4liLa3CnpgYKNjgUplRzl_WR8gugFIiec8kNK2ifIr43yijy38ccjDuvNexTKS6Z6ozkZdFriCilkPi-R-uMZC-BpBsFVQMxid0fInoS6_yfUggcYzgrk1jN7lRc6j9OujpG5MxeZ8L81jSUJwgFQhZNd6Q3PF7gJ1IJHrEWX2QAo_Y78-Q8eWIHc8uOdpmeV3LpW92IaURStfW3cF2M)

**Applications Natural Language Processing 과정**

Natural Language Processing with Deep Learning - cs224n (\* not sure if it belongs here, people working in NLP can help me out) [http://web.stanford.edu/class/cs224n/](https://l.facebook.com/l.php?u=http%3A%2F%2Fweb.stanford.edu%2Fclass%2Fcs224n%2F&h=AT0jNRssJe3zIe5tZaQ7QMSNFFoHH8en7HCpvNzEh4CnY-N-N88pL1nSI086X0FL9Ji50guIO_-rozIIPdP4lX4OVHGJui7xE_AFEkc0TSzY0tsDzwKCFSS7ADNfUqZ4G5w7isnrrqqWOu0EUfXx&__tn__=-UK-R&c%5b0%5d=AT0MjRF387-niuAALIivMa_4liLa3CnpgYKNjgUplRzl_WR8gugFIiec8kNK2ifIr43yijy38ccjDuvNexTKS6Z6ozkZdFriCilkPi-R-uMZC-BpBsFVQMxid0fInoS6_yfUggcYzgrk1jN7lRc6j9OujpG5MxeZ8L81jSUJwgFQhZNd6Q3PF7gJ1IJHrEWX2QAo_Y78-Q8eWIHc8uOdpmeV3LpW92IaURStfW3cF2M)

Neural networks for NLP - cs11-747 [http://www.phontron.com/class/nn4nlp2020/schedule.html](https://l.facebook.com/l.php?u=http%3A%2F%2Fwww.phontron.com%2Fclass%2Fnn4nlp2020%2Fschedule.html&h=AT17T_eFm-O0-kCL_DM3LUUuawVOqE0qJduwk5RCADepI1gTLbBRRMWJTUoow_1BPKRcBaS4kFFWTrGSydSlxNUdeQBNpR_uyuHMzMsd3rSGEWVuIkWxzrzsopSYyQajYrPsXmuJsIr8_QGSTDlQ&__tn__=-UK-R&c%5b0%5d=AT0MjRF387-niuAALIivMa_4liLa3CnpgYKNjgUplRzl_WR8gugFIiec8kNK2ifIr43yijy38ccjDuvNexTKS6Z6ozkZdFriCilkPi-R-uMZC-BpBsFVQMxid0fInoS6_yfUggcYzgrk1jN7lRc6j9OujpG5MxeZ8L81jSUJwgFQhZNd6Q3PF7gJ1IJHrEWX2QAo_Y78-Q8eWIHc8uOdpmeV3LpW92IaURStfW3cF2M)

Natural Language Understanding - cs224u, video [https://web.stanford.edu/class/cs224u/](https://l.facebook.com/l.php?u=https%3A%2F%2Fweb.stanford.edu%2Fclass%2Fcs224u%2F&h=AT2Jl9D7eQw1Du-ZaXIFc_vQL6ySx0kfnNtlsXjAcBvf2Tg7HoFTZLITqCO8dmhlWcynokB6kGjKxnSgXqvjudtqKSg6qR6aQlNNYZ4zeHDRGBrMP_EvXZGjV0pHH2Ark326hUjxugxccEjyU5uk&__tn__=-UK-R&c%5b0%5d=AT0MjRF387-niuAALIivMa_4liLa3CnpgYKNjgUplRzl_WR8gugFIiec8kNK2ifIr43yijy38ccjDuvNexTKS6Z6ozkZdFriCilkPi-R-uMZC-BpBsFVQMxid0fInoS6_yfUggcYzgrk1jN7lRc6j9OujpG5MxeZ8L81jSUJwgFQhZNd6Q3PF7gJ1IJHrEWX2QAo_Y78-Q8eWIHc8uOdpmeV3LpW92IaURStfW3cF2M)

**Applications 3D Graphics 과정**

Non-Euclidean Methods in Machine Learning - cs468, 2020 [http://graphics.stanford.edu/.../cs468-20-fall/schedule.html](https://l.facebook.com/l.php?u=http%3A%2F%2Fgraphics.stanford.edu%2Fcourses%2Fcs468-20-fall%2Fschedule.html&h=AT37IS8LprTry249n1i_i9jlwE2bxCO_hIX3MiEK0MZyl_3_K7CVGcJ1R2e3f2qksG4q88E5pwtoDBH02bWzFcZnOA7iNnSzHC3Fks2d6hSR_8-ClXQkN_BrSZNBZq2UJKv-uUkY-7AyUCFpLv7e&__tn__=-UK-R&c%5b0%5d=AT0MjRF387-niuAALIivMa_4liLa3CnpgYKNjgUplRzl_WR8gugFIiec8kNK2ifIr43yijy38ccjDuvNexTKS6Z6ozkZdFriCilkPi-R-uMZC-BpBsFVQMxid0fInoS6_yfUggcYzgrk1jN7lRc6j9OujpG5MxeZ8L81jSUJwgFQhZNd6Q3PF7gJ1IJHrEWX2QAo_Y78-Q8eWIHc8uOdpmeV3LpW92IaURStfW3cF2M)

Machine Learning for 3D Data - cs468, spring 2017 [http://graphics.stanford.edu/.../cs468-17.../schedule.html](https://l.facebook.com/l.php?u=http%3A%2F%2Fgraphics.stanford.edu%2Fcourses%2Fcs468-17-spring%2Fschedule.html&h=AT11KPmDqC7G-EIatYsk0bPdLNzlPOq4ty8m29JAkgPu8cn4atC4tn9mtFTSN2fRCwvgJ012UZIU1js5rVzQGUXB6GYYkc6NI-ffnnpVRerMwwaJJkysO1Vp-dLTgQ7X_anuLHin8PKx3IqB8sE8&__tn__=-UK-R&c%5b0%5d=AT0MjRF387-niuAALIivMa_4liLa3CnpgYKNjgUplRzl_WR8gugFIiec8kNK2ifIr43yijy38ccjDuvNexTKS6Z6ozkZdFriCilkPi-R-uMZC-BpBsFVQMxid0fInoS6_yfUggcYzgrk1jN7lRc6j9OujpG5MxeZ8L81jSUJwgFQhZNd6Q3PF7gJ1IJHrEWX2QAo_Y78-Q8eWIHc8uOdpmeV3LpW92IaURStfW3cF2M)

Data-Driven Shape Analysis - cs468, 2014 [http://graphics.stanford.edu/courses/cs468-14-spring/](https://l.facebook.com/l.php?u=http%3A%2F%2Fgraphics.stanford.edu%2Fcourses%2Fcs468-14-spring%2F&h=AT0rRSrTa0Ih2QxHnNwNe6uaBKj8vlaEMmqIWP1aTmluFlMLN5MlPlBVzEoHZQuCor-6mTaVVADFl_m15iDHbVC3Cp8nYF1SZgCVh_JnTja3mT566jQLmpc5u1KXnJI7YDmRYba6_7XO_bZnniIQ&__tn__=-UK-R&c%5b0%5d=AT0MjRF387-niuAALIivMa_4liLa3CnpgYKNjgUplRzl_WR8gugFIiec8kNK2ifIr43yijy38ccjDuvNexTKS6Z6ozkZdFriCilkPi-R-uMZC-BpBsFVQMxid0fInoS6_yfUggcYzgrk1jN7lRc6j9OujpG5MxeZ8L81jSUJwgFQhZNd6Q3PF7gJ1IJHrEWX2QAo_Y78-Q8eWIHc8uOdpmeV3LpW92IaURStfW3cF2M)

Geometric Deep Learning - Not a course but the website links a few tutorials on Geometric DL [http://geometricdeeplearning.com/](https://l.facebook.com/l.php?u=http%3A%2F%2Fgeometricdeeplearning.com%2F&h=AT0wDoYw84PgwXcZt3ZiKUzHppET5ImzeESaRuctpZ7FUp_qm6troUkl995StkglC1jowwTjz3O1eqPs8YnbS25IjUvCSC_dXDBrtg2ClY5xb-Ztu9818QlKRl98Ciafjn7DgX937ebibpBRkW6Y&__tn__=-UK-R&c%5b0%5d=AT0MjRF387-niuAALIivMa_4liLa3CnpgYKNjgUplRzl_WR8gugFIiec8kNK2ifIr43yijy38ccjDuvNexTKS6Z6ozkZdFriCilkPi-R-uMZC-BpBsFVQMxid0fInoS6_yfUggcYzgrk1jN7lRc6j9OujpG5MxeZ8L81jSUJwgFQhZNd6Q3PF7gJ1IJHrEWX2QAo_Y78-Q8eWIHc8uOdpmeV3LpW92IaURStfW3cF2M)

Deep Learning for Computer Graphics - SIGGRAPH 2019 [https://geometry.cs.ucl.ac.uk/creativeai/](https://l.facebook.com/l.php?u=https%3A%2F%2Fgeometry.cs.ucl.ac.uk%2Fcreativeai%2F&h=AT3GeXVwzsjVWhPOECa8cPTdN-AQnOwnuCphviWdnRCJVYE3P-Qr05ZBPz36ZgZrjhgGbH_zdBpYRRWkCb7-uPP_B9r3FIdylnb3FYdEgZtaz-5fUjtAvrBUXq7CFDTc1kRqtxosgGmj4FJ3KyPr&__tn__=-UK-R&c%5b0%5d=AT0MjRF387-niuAALIivMa_4liLa3CnpgYKNjgUplRzl_WR8gugFIiec8kNK2ifIr43yijy38ccjDuvNexTKS6Z6ozkZdFriCilkPi-R-uMZC-BpBsFVQMxid0fInoS6_yfUggcYzgrk1jN7lRc6j9OujpG5MxeZ8L81jSUJwgFQhZNd6Q3PF7gJ1IJHrEWX2QAo_Y78-Q8eWIHc8uOdpmeV3LpW92IaURStfW3cF2M)

Machine Learning for Machine Vision as Inverse Graphics - csc2547 Winter'20 [http://www.cs.utoronto.ca/~bonner/courses/2020s/csc2547/](https://l.facebook.com/l.php?u=http%3A%2F%2Fwww.cs.utoronto.ca%2F~bonner%2Fcourses%2F2020s%2Fcsc2547%2F&h=AT1g8tuZOHx-7lfL6j6ydTaEQolO7Z8-Cr5JXjo2Zxrpgyja8eztNeN6s-YACeyscKeIrdddGzKVvOFnpJmxIfpYxSsLcGMdXPe_4VDWdtjYL6f_EBerKFhLp45an-VBeCZl-kiWNbJnzSkE2zZB&__tn__=-UK-R&c%5b0%5d=AT0MjRF387-niuAALIivMa_4liLa3CnpgYKNjgUplRzl_WR8gugFIiec8kNK2ifIr43yijy38ccjDuvNexTKS6Z6ozkZdFriCilkPi-R-uMZC-BpBsFVQMxid0fInoS6_yfUggcYzgrk1jN7lRc6j9OujpG5MxeZ8L81jSUJwgFQhZNd6Q3PF7gJ1IJHrEWX2QAo_Y78-Q8eWIHc8uOdpmeV3LpW92IaURStfW3cF2M)

Machine Learning Meets Geometry, winter 2020; Machine Learning for 3D Data, winter 2018 [https://geoml.github.io/schedule.html](https://l.facebook.com/l.php?u=https%3A%2F%2Fgeoml.github.io%2Fschedule.html&h=AT2rBFkE9zxFpdkJtzIWqBoxzU0FvDLBwtqUnZxAEZRPc2jEbJtOqkpSpUPaA-4wyiut9abnV4N4BtegSXHMmirJARxX9g8cz-2euuCnEYBpVlzM2zkdWTqlJWrWgJ9f8Xo5p6ZDizSRylnTWDR7&__tn__=-UK-R&c%5b0%5d=AT0MjRF387-niuAALIivMa_4liLa3CnpgYKNjgUplRzl_WR8gugFIiec8kNK2ifIr43yijy38ccjDuvNexTKS6Z6ozkZdFriCilkPi-R-uMZC-BpBsFVQMxid0fInoS6_yfUggcYzgrk1jN7lRc6j9OujpG5MxeZ8L81jSUJwgFQhZNd6Q3PF7gJ1IJHrEWX2QAo_Y78-Q8eWIHc8uOdpmeV3LpW92IaURStfW3cF2M)

자연어처리

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spatial dropout과 dropout 차이

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- 통계분석연구회  
- 카페 : <http://cafe.daum.net/statsas>  
- 통계분석연구회(Statistics Analysis Study) 그룹 :[https://www.facebook.com/groups/statsas](https://www.facebook.com/groups/statsas/?fref=mentions&__xts__%5B0%5D=68.ARAzVkDF1u2WZHzYzU0cXu9PgScpGmzmM-hPyY8bV-590fNs3QPU_l3AvfLb24RWkszOJTHzOZjSIQiub-qgMHcqUD4atp-eKHhX0N66_LknNaqOAYzDTZxtIeupnrcWlNL_gG6dWtbuKJqBxkwqp33B0_YqbuMmavImdx4PER2uP2T4hoxD_tCTBGGPrG36V7rXwX02GhjrEufEf2FzAZHTTsCJIeOQ6MutzGrFCjbceeSUSr3SHbrayS-MlqbEMuXGaKPTPmzW8GfiarxAef3nVwbELU2X74eMOn2dzMGs067-s_4yZkyQAV5e-PskYUw_nuwO0x4n2L0PISqWbA64tK3ArnzoFaxWzlTBmQfRUUpNqbPvEx--IglTmzBHknVRJBggu-74TYg7uT2ft-8xFWQB&__tn__=K-R)

텐서플로우 사용법

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배치 정규화

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손실함수

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이미지 1D ~ 3D

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