Vienna Deep Learning Meetup

January 9, 2018 @ weXelerate

weXelerate

Vienna Deep Learning Meetup

The Organizers:

Thomas Lidy
Musimap

Jan Schlüter
OFAI

Alex Schindler
AIT & TU Wien

Vienna 15th Deep Learning Meetup

Agenda:

- Welcome & Introduction (Tom Lidy)
- ~~Computer Vision - then and now (Alexander Schindler, AIT)~~
- Transfer Learning for fun and profit (Alexander Hirner, MoonVision)
- Deep Learning on 3D Medical Image Data at Contextflow
- Announcements (Events, Jobs)

30 minutes break

- Latest news and trends from NIPS (Rene Donner, Contextflow; Jan Schlüter, OFAI)
- Discussions and Networking

Vienna Deep Learning Meetup

Event Announcements

Vienna Deep Learning Meetup

Let AI experts teach you

Machine Learning Prague 2018

MARCH 23 - 25

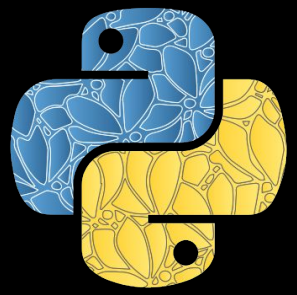
Code 10% off - **vdlm**

mlprague.com

1 000+ ATTENDEES

45 SPEAKERS

9 WORKSHOPS



PyDays Vienna

4 - 5 May 2018

Free Entry (Registration Required)

https://www.pydays.at

- Call for Participation until 21st of March 2018
- Hosted by Linuxwochen Wien
- Location: FH Technikum Wien
  (University of Applied Sciences Wien), Höchstädtplatz 6, Vienna

Peter Regner

APPLIED ARTIFICIAL INTELLIGENCE CONFERENCE 2018

WIEN, 29.05.2018

Matthias Grabner

GOAL OF EVENT

- Exchange on how AI is used today, in a pragmatic and applied approach. Connect developers with users and possible future users of machine learning, deep learning and neural networks for businesses

PARTICIPANTS

- C-Level (CEOs, CMO + Sales, CTO + CIOs) executives from businesses across all industry sectors from Austria and mainly neighbouring countries; 400 participants expected

SPEAKERS

- Keynote speakers from AI for business companies with a strong international POC and solutions that are relevant for businesses across a wide range of industry sectors; Willingness to host a topical workshop with selected companies on the day of the event

  - Nicolas Chapados, CSO of Element AI (tbc)
  - Thomas W. Malone, MIT Center for Collective Intelligence
  - …

AGENDA

- Opening Keynotes
- 8 topical tracks (panel discussions)

IMAGE RECOGNITION	TEXTMINING	TIME SERIES ANALYSIS	CLUSTERING
ANOMALY DETECTION	GEODATA	CREATIVE AI	HOW TO GET STARTED

- Prearranged B2B Meetings
- In depth workshops
- Networking Lounge
- Exhibitor space

AUSTRIA IST ÜBERALL.

WKO AUSSENWIRTSCHAFT AUSTRIA

REGISTRATION OPENS JANUARY 22, 2018

Get in touch and get involved!

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W wko.at/aussenwirtschaft/aaic

go international

Other Announcements

Vienna Deep Learning Meetup

Data Science Hackathon - Kaggle Competition

- Modern Data Science Tools Meetup
  - https://www.meetup.com/Vienna-Modern-Data-Science/

- Kaggle Competitions
  - https://www.kaggle.com/competitions

kaggle

- Poll
  - https://www.meetup.com/Vienna-Modern-Data-Science/polls/1260417

- Contact
  - bpirvu@novomatic.com

LEHNER EXECUTIVE PARTNERS

Vienna Munich Frankfurt Moscow

Member of the Cornerstone International Group

Bernhard Reiser

We are one of the Top 5, internationally certified executive search companies with focus on ASG and CEE

Who we are

- One of the only top 5 executive search companies in Austria certified by AESC, the Association of Executive Search and Leadership Consultants
- Since 1996 prestigiously established on the Austrian market
- Focus on ASG and CEE
- 90% of our clients are regular customers, 95% of all searched positions successfully filled
- We offer international presence: with our 4 own offices as well as a member of the Cornerstone International Group with 70 offices in 55 countries we serve our clients all around the world

We are market leaders and focus in three primary areas

Our focus is on innovative and dynamic industries and technologies

1. Technology (incl. AI, Robotics, Machine Learning, etc.)
2. Advisory and Consulting
3. M&A and team moves

- By our clear focus we have outstanding access to the market
- We have deep rooted sector know-how and keep ourselves state of the art on the market developments both on the client and candidate side
- We maintain ongoing contact to assure we are always up to date with every change

What we can offer

Currently one of our clients (a top brand in consultancy) is building up an AI-Team in Vienna. Therefore we look for

1. AI Experts
   - You are already working in an AI environment and want to be part of a blowing business unit within a top firm?
2. AI Team leaders
   - You are a team leader in the AI area, you bring a good sales approach and you like to build up business from scratch?
3. Company
   - You own a company specialized on AI and want to drive business to the next level through the benefit of a market leader with an extensive network?

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* break *

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Hot Topics &
Latest News

a short block at every meetup
to briefly present recent papers and news

Send us contributions (tom.lidy@gmail.com)
or come with slides to do a short block yourself!

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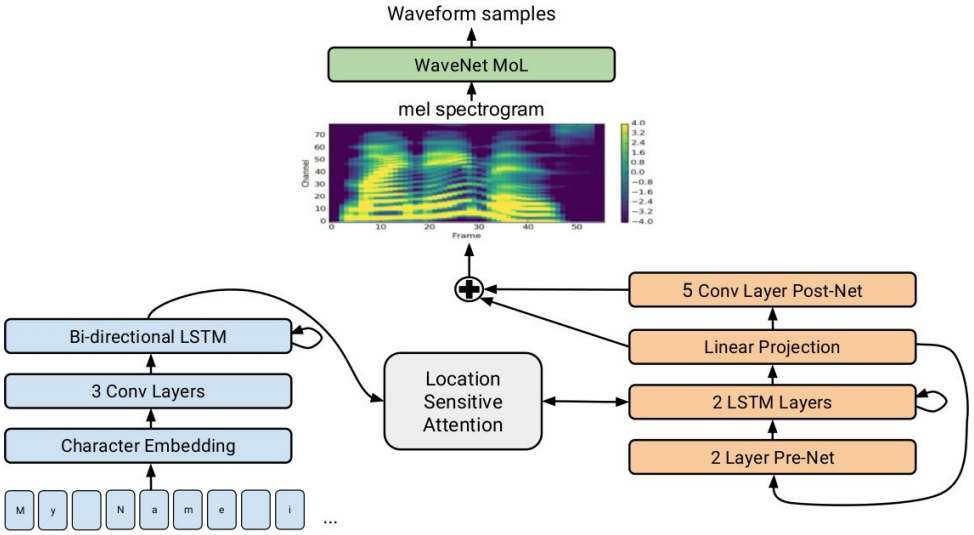
Tacotron 2

- Text-to-speech directly from characters, learned end-to-end
- Improvement over Tacotron: mel spectrogram + WaveNet instead of linear spectrogram + Griffin-Lim
- Improvement over some earlier WaveNet-based systems: no need to explicitly predict phones, timing and f0
- Comparison to Deep Voice 3: higher MOS, more mispronounciations, fewer repetitions or skipped words



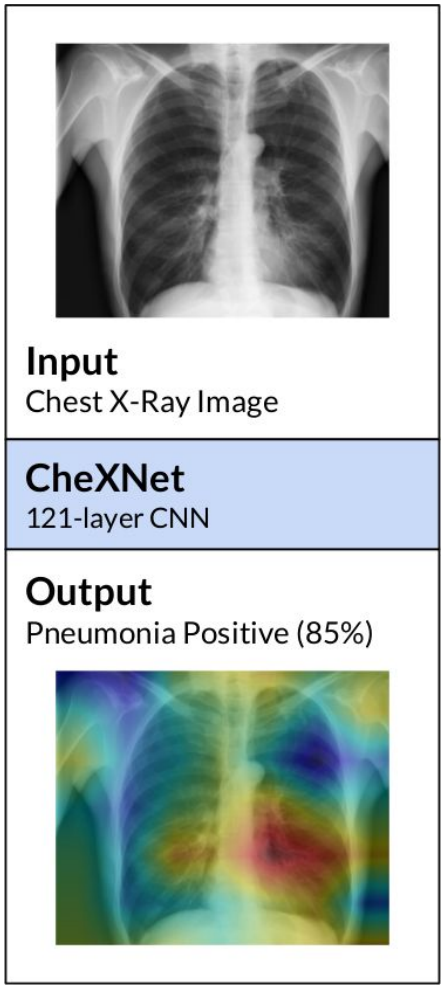
Name	MOS
Parametric	3.492 ± 0.096
Tacotron (Griffin-Lim)	4.001 ± 0.087
Concatenative	4.166 ± 0.091
WaveNet (Linguistic)	4.341 ± 0.051
Ground Truth	4.582 ± 0.053
Tacotron 2 (this paper)	$\mathbf{4.526 \pm 0.066}$

https://arxiv.org/abs/1712.05884

CheXNet: Radiologist-Level Pneumonia Detection on Chest X-Rays with Deep Learning

- "We develop an algorithm that can detect pneumonia from chest X-rays at a level exceeding practicing radiologists."

	F1 Score (95% CI)
Radiologist 1	0.383 (0.309, 0.453)
Radiologist 2	0.356 (0.282, 0.428)
Radiologist 3	0.365 (0.291, 0.435)
Radiologist 4	0.442 (0.390, 0.492)
Radiologist Avg.	0.387 (0.330, 0.442)
CheXNet	0.435 (0.387, 0.481)

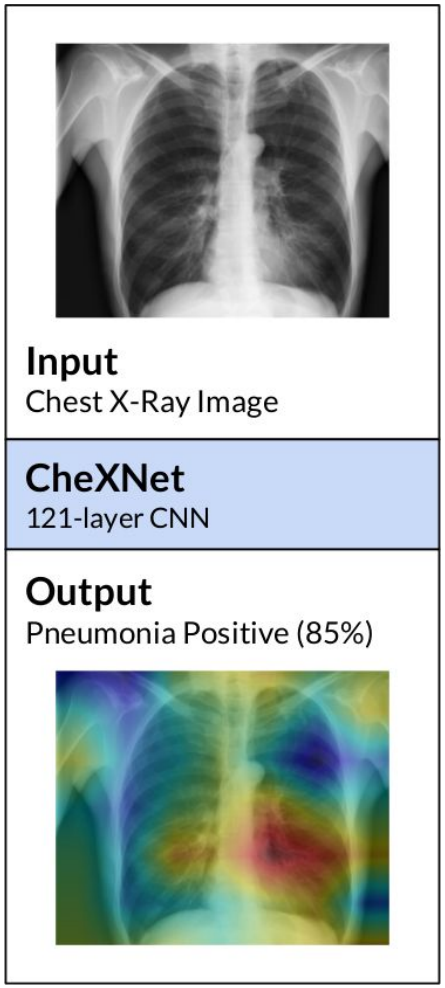


http://arxiv.org/abs/1711.05225

CheXNet: Radiologist-Level Pneumonia Detection on Chest X-Rays with Deep Learning

- "We extend CheXNet to detect all 14 diseases in ChestXray14 and achieve state of the art results on all 14 diseases."

Pathology	Wang et al. (2017)	Yao et al. (2017)	CheXNet (ours)
Atelectasis	0.716	0.772	**0.8094**
Cardiomegaly	0.807	0.904	**0.9248**
Effusion	0.784	0.859	**0.8638**
Infiltration	0.609	0.695	**0.7345**
Mass	0.706	0.792	**0.8676**
Nodule	0.671	0.717	**0.7802**
Pneumonia	0.633	0.713	**0.7680**
Pneumothorax	0.806	0.841	**0.8887**
Consolidation	0.708	0.788	**0.7901**
Edema	0.835	0.882	**0.8878**
Emphysema	0.815	0.829	**0.9371**
Fibrosis	0.769	0.767	**0.8047**
Pleural Thickening	0.708	0.765	**0.8062**
Hernia	0.767	0.914	**0.9164**

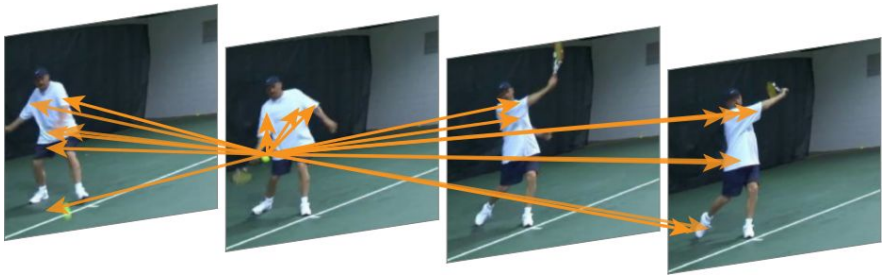


- https://lukeoakdenrayner.wordpress.com/2017/12/18/the-chestxray14-dataset-problems/: labels were mined from medical reports, not by looking at images; some labels are systematically wrong; categories are not medically meaningful

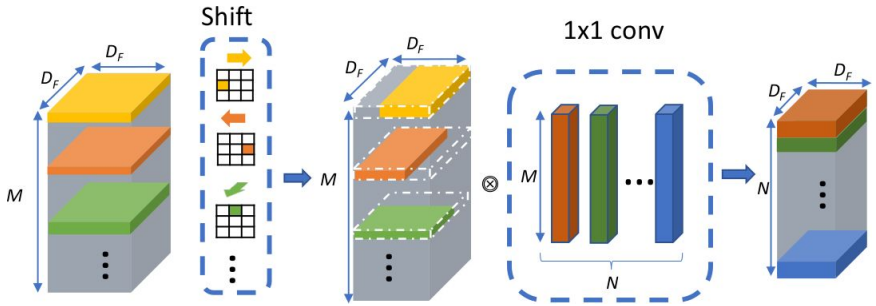
http://arxiv.org/abs/1711.05225

Network architecture innovations

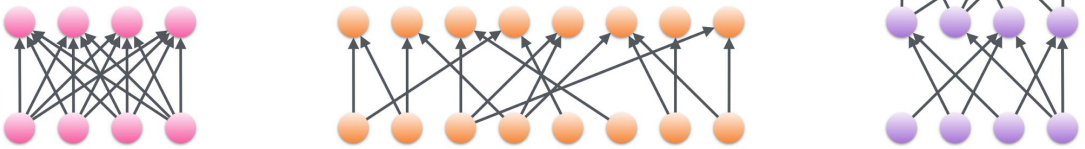
- "Non-local Neural Networks" https://arxiv.org/abs/1711.07971
  A generalization of self-attention for feed-forward networks



- "Shift: A Zero FLOP, Zero Parameter Alternative to Spatial Convolutions"
  https://arxiv.org/abs/1711.08141

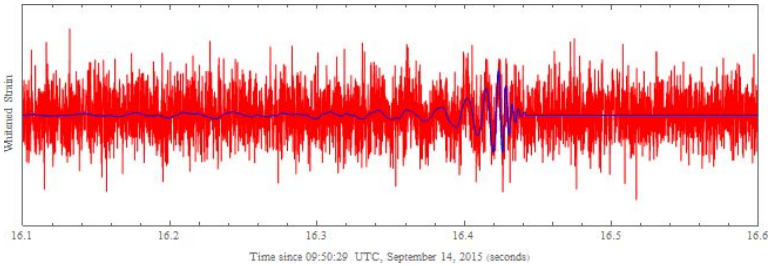


- "Block-Sparse GPU Kernels"
  https://blog.openai.com/block-sparse-gpu-kernels/

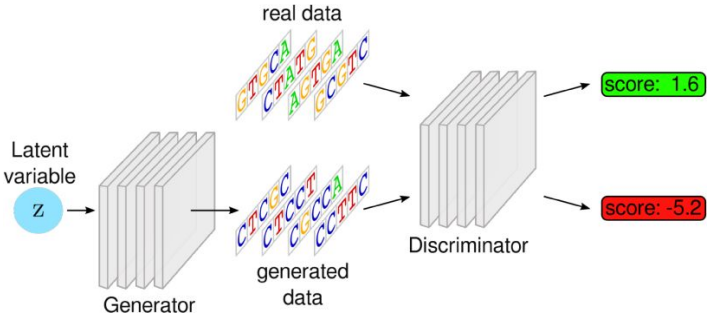


Other interesting applications

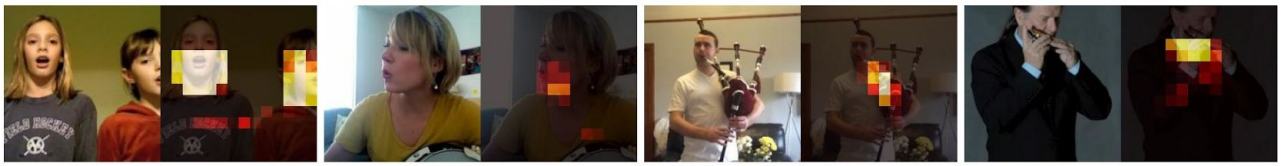
- "Deep Learning for Real-time Gravitational Wave Detection and Parameter Estimation with LIGO Data" https://arxiv.org/abs/1711.07966



- "Generating and designing DNA with deep generative models" https://arxiv.org/abs/1712.06148



- "Objects that Sound" https://arxiv.org/abs/1712.06148



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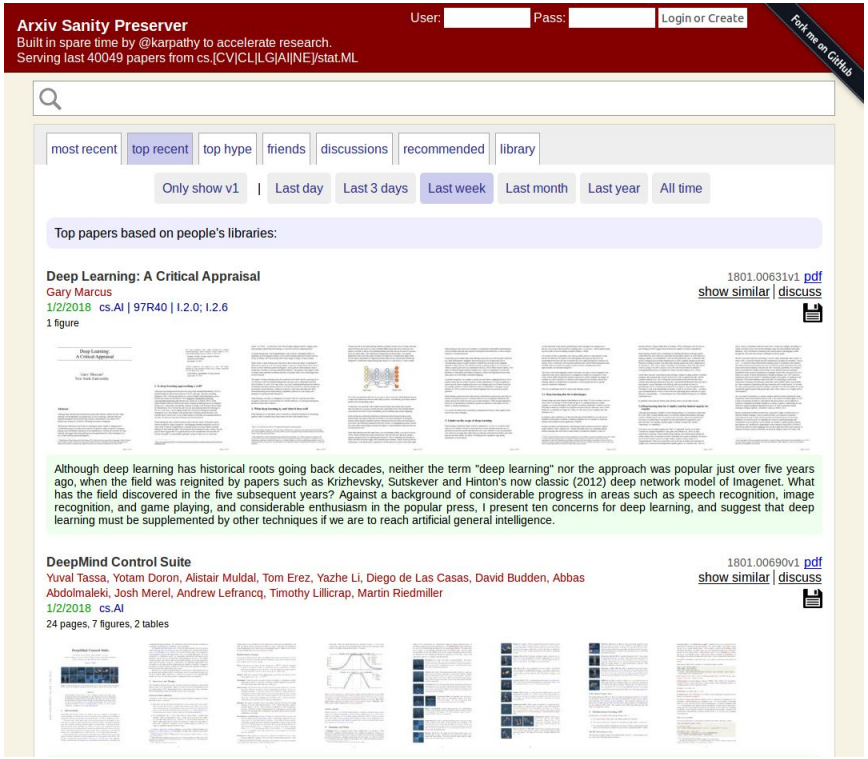
Tons more

arxiv-sanity.com



deeplearn.org

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Sepp Hochreiter

Audi.JKU deep learning center, JKU Linz

Einsatz künstlicher Intelligenz im Automobil

30.01.2018 um 16:00 Uhr

WeXelerate HQ, main event room (Space 28, 2. Stock)

Anmeldung: office@blueminds-company.com

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Next

mid February 2018

Discussion Panel:

"Ethics and Bias in A.I."

www.meetup.com/Vienna-Deep-Learning-Meetup

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