

## EXPERIENCE

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- Google Zürich** Nov '19 - present  
*Software Engineer, YouTube trust and safety*  
 Zürich  
 Keeping YouTube 📺 safe
- Google Research** June '18 - Sep '18  
*Software Engineering Intern, Handwriting Recognition*  
 Mountain View  
 Zero shot emoji recognizer 🌐
- Researched Machine Learning models for learning better embeddings for emoji recognition
- Amazon CoreAI** Mar '18 - June '18  
*Software Engineering Intern*  
 Berlin  
 Speeding up model evaluation for black box optimization
- Trained ML models on thousands of hyperparameter configurations and created lookup tables with extrapolation for epochwise simulation of black box model.
- Goldman Sachs** May '15 - July '15  
*Summer internship, FICC*  
 Bangalore  
 Real-time Market Data Monitor
- Implemented monitoring and alerting for latency spikes and various market data sanity checks and improved market data subscription

## EDUCATION

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|-----------|---|----------|
| 2016-2019 | <b>MSc Computer Science</b> , ETH Zürich<br>ESOP scholar, awarded to 3 admits among 150 in MSc Computer Science 2016<br>Thesis: <i>Adaptive Step Size in Boosting Black Box Variational Inference</i> | 5.52/6.0 |
| 2012-2016 | <b>B.Tech Computer Science</b> , Indian Institute of Technology, Kanpur<br>Academic Excellence Award for year 2012-13   | 9.1/10   |

## PUBLICATIONS

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- Dresdner, G., Shekhar, S., Pedregosa, F., Locatello, F. and Rätsch, G., 2021. Boosting Variational Inference With Locally Adaptive Step-Sizes. *selected to be published in ICJAI 2021*, arXiv preprint arXiv:2105.09240.
- Kim Albertsson, Sergei Gleyzer, Marc Huwiler, Vladimir Ilievski, Lorenzo Moneta, Saurav Shekar, Victor Estrade, Akshay Vashistha, Stefan Wunsch and Omar Andres Zapata Mesa, *New Machine Learning Developments in ROOT/TMVA, 23rd International Conference on Computing in High Energy and Nuclear Physics (CHEP 2018)*, September 2019.  
 doi.org/10.1051/epjconf/201921406014

## PROJECTS

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- Dialogue generation using Seq2seq models** April '17 - June '17  
*Course project in Natural Language Understanding under Prof. Thomas Hofmann*
- Starting with a basic sequence to sequence model for conversational agent, improved upon the baseline using attention models, stacked RNNs, mutual information (for diversifying output) and beam search.
  - Introduced histograms of word frequency as a metric to evaluate model performance (especially diversity) along with perplexity and BLEU score.
- Recurrent Neural Networks on GPU for Particle Physics applications** May '17 - August '17  
*Google Summer of Code project under CERN-HEP Software Foundation, Geneva*
- Restructured the Deep Learning module and added Recurrent Neural Network support in TMVA Module in the ROOT data analysis framework
- Optimized implementation of Latent Dirichlet Allocation** March '17 - June '17  
*Course project in How to Write Fast Numerical Code under Prof. Markus Püschel*
- Enhanced the performance of a standard Latent Dirichlet Allocation (LDA) implementation on single core using memory usage improvements, use of SIMD instructions, cache analysis etc.

- Achieved a speedup of 11x over original C implementation written by authors of LDA.

### Scala to MIPS Assembly Compiler

Jan '15 - Apr '15

Course Project in Compilers under prof. Subhajit Roy, IIT Kanpur

- Programmed a Scala to MIPS cross compiler with support for basic datatypes, conditional statements, looping statements, arrays, nested functions, recursion and object oriented features.
- Awarded as the 2<sup>nd</sup> best project for the course out of 22 teams.

### Extension of NACHOS

Aug '14 - Nov '14

Course Project in Operating Systems under prof. Mainak Chaudhuri, IIT Kanpur

- Extended the standard system call library of NachOS and implemented Fork, Exec, Join, Yield, Sleep, Exit system calls. Implemented process scheduling algorithms like UNIX scheduling, FIFO, Round robin, SJF and non-preemptive scheduling.
- Programmed page replacement algorithms: Random allocation, FIFO, LRU and LRU-clock and evaluated relative performance.

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### ACADEMIC

- Research Assistant, Biomedical Informatics Group, ETH Zürich, summer 2019
- Research Assistant, Information Science and Engineering Group, ETH Zürich, fall 2017
- Teaching Assistant, Data Structures and algorithms, IIT Kanpur, fall 2015
- Teaching Assistant, Advanced algorithms, IIT Kanpur, fall 2015
- Secured All India Rank 958 in IIT-JEE among 500,000 candidates.
- Selected in Top 1% of each of the National Standard Examinations in Physics (NSEP), Chemistry (NSEC) and Astronomy (NSEA) and Regional Mathematics Olympiad.

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### MISCELLANEOUS

- Open source contributions: CERN root project, PyMC4, PyMC3 (minor)
- Google Hash Code 2017 onsite Finalist, under top 50 worldwide among 3000 teams in the qualification round.
- Ranked 10<sup>th</sup> among 60 teams and awarded a bronze medal at ACM ICPC SWERC 2016 Regionals.
- 6<sup>th</sup> place among top 25 teams selected (among 8000 in online rounds) for the Codechef Snackdown onsite finale 2015.
- Secretary, Programming Club (2013-2014) - Assisted in organizing Programming competitions and took introductory programming lecture for the freshers.
- **Languages:** English (Full Professional fluency), German (Intermediate), Hindi/Urdu (Native)

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### TECHNICAL SKILLS

**Coursework:** Computer Vision, Probabilistic Machine Learning, Graphical models for image analysis Deep Learning, Natural Language Understanding, Machine Learning, Hardware Architectures in Machine Learning, How to Write Fast Numerical Code, Algorithms Lab

**Programming Languages:** C++ (Proficient), Python (Proficient), Bash

**Software:** Tensorflow, Scikit-Learn, PyMC, CUDA (cuBLAS), MySQL, Git, AWS Sagemaker L<sup>A</sup>T<sub>E</sub>X