Utku Evci

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Work & Research Experience

Present — **Google**, Brain Team — Montreal, Canada
Research Engineer
• Working on efficient training of neural networks [5] and few-shot learning [2, 9] .
• Led the organization of inaugural sparsity workshop (https://sparseneural.net/ which attracted 200+ live views and 60+ submissions.

2018-2020 — **Google**, Brain Team — Montreal, Canada
2018 AI Residency Program
• Learned Tensorflow and various Google tools and checked-in 20k+ peer-reviewed code in the first 12 months.
• Worked on training sparse neural networks. First we investigated the loss energy landscape and presented our results at ICML 2019 Deep Phenomena Workshop [6] and we presented a full paper that introduces a novel method for training sparse neural in the ICML 2020 [4]. The method finds SOTA sparse networks and the code is open sourced here.
• Submitted a paper to ICLR 2019 [7] on a new neural network pruning method that efficiently reduces the Δ loss due pruning.

Summer 2017 — **Amazon**, AWS EC2 — Seattle, United States
Software Development Engineer (SDE) Intern: Auditing Big-Data
• Wrote 3000+ lines of pyspark/python-code using 14 different API/library for auditing TB-scale data on AWS.
• Resulting spark program was able to reach 50mb/s per node processing speed and scaled linearly.

Spring 2017 — **NYU**, Courant Institute — New York, United States
Research Assistant: 2 different projects
• Worked with Levent Sagun on energy landscapes of deep neural networks and co-authored a paper accepted to ICLR 2018 [8].
• Worked with Alex Rives (PhD candidate) on predicting protein structure from sequence information.

Summer 2015 — **Swiss Federal Institute of Technology (EPFL)**, IIG — Lausanne, Switzerland
Research Intern: Modeling Human Stepping
• Processed 3D marker data sequence to detect steps and their locations on 2D plane, which led to a short paper published in CASA '16 [1].
• Wrote a full-paper remotely along with an online .js implementation summing up to 4000+ lines of MATLAB/javascript which is accepted to MIG '16 as poster.

Achievements

2018 **Google AI Residency**, Selected from over 5k applications ($< 1\%$).

2016 **Fulbright Scholarship & NYU GSAS Tuition Scholarship**, for M.Sc. at NYU.

2011 **Semahat Arsel Scholarship**, most prestigious full scholarship for the B.Sc. at Koc University.

2011 **Ranked 1^{st} in Turkey**, in College Entrance Exam (LYS) out of more than a million people.

Education

May 2018 — **New York University**, Courant Institute — New York, NY
M.Sc. in Computer Science, GPA:3.95/4

June 2016 — **Koc University**, College of Engineering — Istanbul, Turkey
B.Sc. in Electrical and Electronics Engineering, GPA: 3.99/4.30, 2^{nd} in class
B.Sc. in Computer Engineering, GPA: 4.02/4.30, 2^{nd} in class

Skills & Interest

> 5000 lines C ∘ **Python** ∘ Java ∘ Bash ∘ Tensorflow

> 2000 lines CUDA ∘ (py)Spark ∘ (py,Lua)Torch ∘ Javascript/d3.js

Familiar CSS/HTML ∘ OpenMPI/MP ∘ C++ ∘ Lisp/Scheme

Other Projects

Spring 2018 **Detecting Dead Weights and Units [3]**, Python/Bash
M.Sc. Thesis advised by Prof. Léon Bottou
- Implemented pytorchpruner: pruning library for pytorch with 1k+ lines.
- Wrote exp-bootstrp for managing large scale experiments.

Fall 2016 **Neural Network Pruning**, Python/Bash
Computer-Vision Class Project
- Wrote 1500+ lines of code in 6 weeks along with a report and literature review of 15+ papers.

References

[1] Ronan Boulic, **Utku Evci**, Eray Molla, and Phanindra Pisupati. One Step from the Locomotion to the Stepping Pattern. In *Proceedings of the 29th International Conference on Computer Animation and Social Agents*, 2016.

[2] Vincent Dumoulin, Neil Houlsby, **Utku Evci**, Xiaohua Zhai, Ross Goroshin, Sylvain Gelly, and Hugo Larochelle. Comparing transfer and meta learning approaches on a unified few-shot classification benchmark. In *Neural Information Processing Systems Datasets and Benchmarks Track*, 2021.

[3] **Utku Evci**. Detecting Dead Weights and Units in Neural Networks. *arXiv*, 2018.

[4] **Utku Evci**, Trevor Gale, Pablo Samuel Castro Rivadeneira, and Erich Elsen. Rigging The Lottery: Making All Tickets Winners. In *International Conference of Machine Learning*, 2020.

[5] **Utku Evci**, Yani Andrew Ioannou, Cem Keskin, and Yann N. Dauphin. Gradient Flow in Sparse Neural Networks and How Lottery Tickets Win. *arXiv*, 2020.

[6] **Utku Evci**, Fabian Pedregosa, Aidan N. Gomez, and Erich Elsen. The Difficulty of Training Sparse Neural Networks. In *International Conference of Machine Learning Workshop Deep Phenomena*, 2019.

[7] **Utku Evci**, Nicolas Le Roux, Pablo Castro, and Léon Bottou. Mean Replacement Pruning. *Openreview*, 2018.

[8] Levent Sagun, **Utku Evci**, V. Ugur Güney, Yann Dauphin, and Léon Bottou. Empirical Analysis of the Hessian of Over-Parametrized Neural Networks. In *International Conference on Learning Representations Workshop Track*, 2018.

[9] Eleni Triantafillou, Tyler Zhu, Vincent Dumoulin, Pascal Lamblin, **Utku Evci**, Kelvin Xu, Ross Goroshin, Carles Gelada, Kevin Swersky, Pierre-Antoine Manzagol, and Hugo Larochelle. Meta-dataset: A dataset of datasets for learning to learn from few examples. In *International Conference on Learning Representations*, 2020.