

Evgenii Zheltonozhskii

Skills and expertise

- Deep learning PyTorch (4 years), TensorFlow (1 year), PyTorch3D
- Deep learning research Published 14 papers and preprints in multiple fields of deep learning, including self-supervised learning and adversarial defences, since 2017. Wide knowledge of current trends in computer vision.
- Software development Python (4 years), C++ (5 years, including 2 years of C++17), Linux, L^AT_EX, git, jupyter, pandas, numpy

Experience

- August – November 2020 **Research Intern**, *Snap Research*, Los Angeles (remote), Creative vision group.
 - Hosted by Sergey Tulyakov and Olly Woodford;
 - Worked on 3D shape reconstruction by training on dataset single 2D views.
- 2016 – 2020 **Research Assistant**, *Technion*, Haifa, Professor [Alex Bronstein](#)'s group.
 - Research in deep learning optimization and DNN implementation in hardware;
 - Investigation of compression methods and their impact on DNN performance;
 - Implementation and reproduction of recent DL algorithms and papers.
- June – August 2017 **Google Summer of Code Participant**, *OpenCV*.
[GPU enabled deep learning framework](#): introducing GPU support for *tiny-dnn*, C++14 header-only deep learning library
- 2013 – 2016 **Freelancer**, *Upwork*.
C++, Python programmer

Open source contribution

- 2019 – 2020 **TensorFlow**.
Implementation of differentiable eigendecomposition in TensorFlow
- 2016 – 2018 **tiny-dnn**.
Maintainer of *tiny-dnn*, header only, dependency-free deep learning framework in C++14

Education

- Spring 2020 - present **MSc in Computer Science**, *Technion – Israel Institute of Technology*, Haifa.
 - Advisors: Professors [Alex Bronstein](#) and [Avi Mendelson](#);
 - Research interests: Self-supervised deep learning, geometrical DL, complex computer vision problems, applications of DL in physics, Bayesian DL, bias in ML systems;
 - Teaching experience: “Advanced Topics in Deep Learning”, “Deep Learning on Computational Accelerators”, “Intro to Machine Learning”, organization of seminar in Deep Learning;
 - CS dean excellence scholarship recipient.
- 2016 – 2020 **BSc in Computer Science and BSc in Physics and Mathematics**, *Technion – Israel Institute of Technology*, Haifa, GPA *91.70*.
 - Participant of Excellence Program;
 - President's List (top 3% of students): Spring 2018;
 - Dean's List (top 15% of students): Winter 2016, Spring 2017, Winter 2018, Spring 2019, Winter 2019;
 - Research projects in condensed matter physics:
 - “Renormalization Group Modelling of Interface between $p + ip$ Superconductors”;
 - “Experimental Realization of Anomalous Floquet-Anderson Insulators”;
 - ICPC semifinals: SWERC 2018 – honorable mention, SWERC 2019 – bronze medal (11th place).
- Summer 2018 **DeepBayes**, *Summer school on Bayesian methods in deep learning*.

Publications

- [1] **Evgenii Zheltonozhskii**, Chaim Baskin, Avi Mendelson, Alex M. Bronstein, and Or Litany. "Contrast to Divide: Self-Supervised Pre-Training for Learning with Noisy Labels". In: *arXiv pre-print* (Mar. 2021). URL: <https://arxiv.org/abs/2103.13646>.
- [2] Ameen Ali, Tomer Galanti, **Evgenii Zheltonozhskii**, Chaim Baskin, and Lior Wolf. "Intersection Regularization for Extracting Semantic Attributes". In: *arXiv pre-print* (Mar. 2021). URL: <https://arxiv.org/abs/2103.11888>.
- [3] Ben Finkelshtein, Chaim Baskin, **Evgenii Zheltonozhskii**, and Uri Alon. "Single-Node Attack for Fooling Graph Neural Networks". In: *arXiv pre-print* (Nov. 2020). URL: <https://arxiv.org/abs/2011.03574>.
- [4] **Evgenii Zheltonozhskii**, Chaim Baskin, Alex M. Bronstein, and Avi Mendelson. "Self-Supervised Learning for Large-Scale Unsupervised Image Clustering". In: *NeurIPS 2020 Self-Supervised Learning Workshop* (Aug. 2020). URL: <https://arxiv.org/abs/2008.10312>.
- [5] Alex Karbachevsky, Chaim Baskin, **Evgenii Zheltonozhskii**, Yevgeny Yermolin, Freddy Gabbay, Alex M. Bronstein, and Avi Mendelson. "Early-Stage Neural Network Hardware Performance Analysis". In: *Sustainability* 13.2 (Jan. 2021), p. 717. ISSN: 2071-1050. DOI: 10.3390/su13020717. URL: <http://dx.doi.org/10.3390/su13020717>.
- [6] **Evgenii Zheltonozhskii**, Chaim Baskin, Yaniv Nemcovsky, Brian Chmiel, Avi Mendelson, and Alex M. Bronstein. "Colored Noise Injection for Training Adversarially Robust Neural Networks". In: *arXiv pre-print* (Mar. 2020). URL: <https://arxiv.org/abs/2003.02188>.
- [7] Yaniv Nemcovsky, **Evgenii Zheltonozhskii**, Chaim Baskin, Brian Chmiel, Alex M. Bronstein, and Avi Mendelson. "Smoothed Inference for Adversarially-Trained Models". In: *arXiv pre-print* (Nov. 2019). URL: <https://arxiv.org/abs/1911.07198>.
- [8] Yury Nahshan, Brian Chmiel, Chaim Baskin, **Evgenii Zheltonozhskii**, Ron Banner, Alex M. Bronstein, and Avi Mendelson. "Loss Aware Post-training Quantization". In: *arXiv pre-print* (Nov. 2019). URL: <https://arxiv.org/abs/1911.07190>.
- [9] Chaim Baskin, Brian Chmiel, **Evgenii Zheltonozhskii**, Ron Banner, Alex M. Bronstein, and Avi Mendelson. "CAT: Compression-Aware Training for bandwidth reduction". In: *arXiv pre-print* (Sept. 2019). URL: <https://arxiv.org/abs/1909.11481>.
- [10] Brian Chmiel, Chaim Baskin, Ron Banner, **Evgenii Zheltonozhskii**, Yevgeny Yermolin, Alex Karbachevsky, Alex M. Bronstein, and Avi Mendelson. "Feature Map Transform Coding for Energy-Efficient CNN Inference". In: *2020 International Joint Conference on Neural Networks (IJCNN)*. July 2020, pp. 1–9. DOI: 10.1109/IJCNN48605.2020.9206968. URL: <https://arxiv.org/abs/1905.10830>.
- [11] Yochai Zur, Chaim Baskin, **Evgenii Zheltonozhskii**, Brian Chmiel, Itay Evron, Alexander M. Bronstein, and Avi Mendelson. "Towards Learning of Filter-Level Heterogeneous Compression of Convolutional Neural Networks". In: *ICML 2019 AutoML Workshop* (Apr. 2019). URL: <http://arxiv.org/abs/1904.09872>.
- [12] Chaim Baskin, Natan Liss, Yoav Chai, **Evgenii Zheltonozhskii**, Eli Schwartz, Raja Giryes, Avi Mendelson, and Alexander M. Bronstein. "NICE: Noise Injection and Clamping Estimation for Neural Network Quantization". In: *arXiv pre-print* (Oct. 2018). URL: <https://arxiv.org/abs/1810.00162>.
- [13] Chaim Baskin, Natan Liss, Eli Schwartz, **Evgenii Zheltonozhskii**, Raja Giryes, Alex M. Bronstein, and Avi Mendelson. "UNIQ: Uniform Noise Injection for Non-Uniform Quantization of Neural Networks". In: *ACM Transactions on Computer Systems* 37.1–4 (Mar. 2021). ISSN: 0734-2071. DOI: 10.1145/3444943. URL: <https://arxiv.org/abs/1804.10969>.
- [14] Chaim Baskin, Natan Liss, **Evgenii Zheltonozhskii**, Alexander M. Bronstein, and Avi Mendelson. "Streaming Architecture for Large-Scale Quantized Neural Networks on an FPGA-Based Dataflow Platform". In: *2018 IEEE International Parallel and Distributed Processing Symposium Workshops, IPDPS Workshops 2018, Vancouver, BC, Canada, May 21-25, 2018*. May 2018, pp. 162–169. DOI: 10.1109/IPDPSW.2018.00032. URL: <https://arxiv.org/abs/1708.00052>.