Dmitrii Avdiukhin

Curriculum Vitae

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🖥 *dyukha.github.io*

▬▬▬ Research interests

Projected gradient descent, Balanced graph partitioning, Distributed algorithms, Submodular Optimization.
Previous areas: syntax/static analysis, model generation, model checking.

▬▬▬ Education

2017–current   **Ph.D.**, *Indiana University*, Bloomington, IN.
Advisor: Grigory Yaroslavtsev (`grigory.us`)

2008–2013   **Specialist (5 years) Degree**, *Saint Petersburg State University*, GPA 4.9/5.0.
Diploma with distinction. Thesis title: "Translation definition language for information system reengineering tools". Advisor: Iakov Kirilenko (`https://www.researchgate.net/profile/Iakov_Kirilenko`)

▬▬▬ Experience

Summer 2020   **Research Intern**, *Amazon*.
Federated Learning under weak assumptions.
Mentor: Shiva Kasiviswanathan (`http://www.shivakasiviswanathan.com`)

Summer 2019   **Research Intern**, *Amazon*, New York.
Improving accuracy and performance of graph convolutional networks.
Mentor: Zohar Karnin (`https://sites.google.com/site/zoharkarnin`)

Summer 2018   **Software Engineer**, *Pro Unlimited @ Facebook*, Menlo Park.
Implementing balanced graph partitioning algorithm.
Mentor: Sergey Pupyrev (`https://spupyrev.github.io`)

2016-2017   **Researcher**, *ITMO University*, Saint Petersburg.
Model generation from execution traces

2013-2016   **Software Engineer**, *JetBrains*, Saint Petersburg.
SQL dialect support

2012-2013   **Software Engineer**, *Lanit Tercom*, Saint Petersburg.
Participating in project of migration a system from SQL Server to Oracle

▬▬▬ Publications

Authors are listed in alphabetical order unless marked with ⋆

AISTATS 2021 (under review)   **D. Avdiukhin** and G. Yaroslavtsev. "Escaping Saddle Points with Inequality Constraints via Noisy Sticky Gradient Descent", 24th International Conference on Artificial Intelligence and Statistics.

AISTATS 2021 (under review)	**D. Avdiukhin** and S. Kasiviswanathan. "Federated Learning under Arbitrary Communication Patterns", 24th International Conference on Artificial Intelligence and Statistics
AAAI 2021	**D. Avdiukhin**, S. Naumov, and G. Yaroslavtsev. "Objective-Based Hierarchical Clustering Algorithms for Embedding Vectors", 35th AAAI Conference on Artificial Intelligence
OPT 2020	**D. Avdiukhin**, and G. Yaroslavtsev. "Escaping Saddle Points with Compressed SGD", 12th OPT Workshop on Optimization for Machine Learning.
AISTATS 2020	⋆ G. Yaroslavtsev, S. Zhou, and **D. Avdiukhin**. ""Bring Your Own Greedy"+Max: Near-Optimal $1/2$-Approximations for Submodular Knapsack", 23rd International Conference on Artificial Intelligence and Statistics. `https://arxiv.org/pdf/1910.05646.pdf`
OPT 2019	**D. Avdiukhin**, C. Jin and G. Yaroslavtsev. "Escaping Saddle Points with Inequality Constraints via Noisy Sticky Projected Gradient Descent", 11th OPT Workshop on Optimization for Machine Learning, **Oral + poster**. `https://opt-ml.org/papers/2019/paper_30.pdf`
VLDB 2019	**D. Avdiukhin**, S. Pupyrev and G. Yaroslavtsev. "Multi-Dimensional Balanced Graph Partitioning via Projected Gradient Descent", 45th International Conference on Very Large Data Bases, Research Track. `https://arxiv.org/pdf/1902.03522.pdf`
KDD 2019	**D. Avdiukhin**, S. Mitrovic, G. Yaroslavtsev and S. Zhou "Adversarially Robust Submodular Maximization under Knapsack Constraints". **Oral presentation**, 9.2% acceptance rate. `https://arxiv.org/pdf/1905.02367.pdf`
INDIN 2017	**D. Avdiukhin**, D. Chivilikhin, G. Korneev, V. Ulyantsev and A. Shalyto. "Plant trace generation for formal plant model inference: methods and case study", 15th IEEE International Conference on Industrial Informatics
PSI 2015	E. Verbitskaia, S. Grigorev and **D. Avdyukhin**. "Relaxed Parsing of Regular Approximations of String-Embedded Languages", 10th International Andrei Ershov Memorial Conference on Perspectives of System Informatics

Talks

VLDB 2019	"Multi-Dimensional Balanced Graph Partitioning via Projected Gradient Descent"
KDD 2019	"Adversarially Robust Submodular Maximization under Knapsack Constraints"

Invited Talks

Dec 2019	**Yandex, Moscow, Russia**. "Multi-Dimensional Balanced Graph Partitioning via Projected Gradient Descent"

Honors

2019	Nominated for Microsoft Research Fellowship by the Indiana University Computer Science Department (1 out of 2 per department)
2019	Nominated for Google PhD Fellowship Program by the Indiana University Computer Science Department

Teaching Experience

Spring 2020	**"Applied Algorithms" (graduate)**. Indiana University, Bloomington, CSCI-B505. Head Associate Instructor.
Spring 2019	**"Data Structures" (Honors, undergraduate)**. Indiana University, Bloomington, CSCI-H343. Associate Instructor.

Competitive programming

ACM ICPC	Latest result: 19th place on world semi-final, 2014 (`neerc.ifmo.ru/archive/2014/standings.html`)
Codeforces	Rating: 2135 (`codeforces.com/profile/dyukha`)
Topcoder	Rating: 1784 (`www.topcoder.com/members/dyukha`)

Skills

Languages	Kotlin, C#, Java, Python, C++, various SQL dialects
VCS	git, Mercurial, SVN
English	TOEFL: 100, Upper-Intermediate