Oleg Tsarkov

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Education

2011 – 2013   **Yandex School of Data Analysis**.

2009 – 2014   **Specialist (equivalent to Master's degree) in Mathematics**, *Moscow State University, Moscow, Russia*, GPA – 5.0 / 5.

Work experience

May 2021 – now   **Google LLC**, *Senior Software engineer, Tech Lead*, Proxybidder Team.
- Claimed the ownership of Shopping Bidding, which was previously supported by 12 engineers.
- Leading the team of **2 people**, managing OKRs aimed at accomodating external team requests and also at improving quality and infrastructure for Shopping Bidding solutions.
- Led effort to optimize bidding behavior for budget restricted customers, which **increased spend and bidding quality by +3%**.
- Designed and implemented cold start improvements for one of the core bidding algorithms, which serves on **45% of Shopping Ads traffic**, resulting in **30% of small customers starting to have traffic**. Also, simultameously, the effort ended up being an overall **quality positive update, +0.3%**. Due to the nature of the problem, the hardest part was to avoid a quality decrease.
- Migrated Shopping Bidding solutions on top of central Gooble Bidding stack, fully owning the migration design. One of the strategies which serves **500 customers** was successfully migrated without any disruptions. Another ongoing initiative involves bidding strategy which is active on **45% of the Shopping Ads traffic**.

May 2018 – May 2021   **Google Switzerland**, *Senior Software engineer*, Shopping Bidding Team.
- Working on cutting edge bidding solutions, which account for a significant chunk of Google Shopping revenue.
- Detected several major bugs in autobidding implementation, fixes of which statistically significantly improved the quality of traffic **(+5% CVR uplift on enhanced CPC bidding strategy)**.
- Implemented new bidding strategies and solutions, which did not exist in Google Shopping before (enhanced CPC for Value, Cooperative bidding, target ROAS improvements).
- Used Recurrent Neural Networks for session-based optimizations, **brought AUC-PR up by 20%** for a TFX based model.
- Improving user trust by implementing bidding strategy statuses logic for Smart Shopping campaigns.
- Helped facilitating cross org effort to migrate external ad stack (SA360) to Google Ads infra (Amalgam project), which involved **communicating directly with over 4 teams**, took ownership of pieces outside of the scope of my team
- Occasionally taking and solving complicated Google-wide infra issues. Examples include fixing bug in TensorFlow matrices operations which **brought +8.8% AUC-PR and -1% logloss** to one of the core models used in ads auction for all the Shopping traffic. Another example is fixing googlesql python client when it was breaking in multithreading context under python3, which facilitated company-wide python3 migration.

Aug 2017 – March 2018   **Yandex**, *Team Leader, Senior Software Engineer*, Advertising Services, Autobidding Team.
- The main focus is on supporting and improving backend of automatic bidder for Yandex Direct.
- Introducing new ideas and algorithms to be implemented in automatic bidder.
- Managing an organized work of the team.

Jul 2016 – Aug 2017   **Yandex**, *Senior Software Engineer*, Advertising Services, Projects Management Team.
- Help in coordination of department-spread projects.

Jun 2015 – Jul 2016   **Yandex**, *Software Engineer*, Advertising Services, Projects Management Team.
- The main task was to support automatic advertisement bidder, available for Yandex Direct users.
- Managing related projects in other teams.

Sep 2012 – Jun 2015   **Yandex**, *Software Engineer*, Advertising Services, Algorithms of Fraud Detection.
- Developing new fraud traffic filtration algorithms.
- Developing automatic Anomalies Detection system, which is able to notify users on anomalies in advertisement traffic.
- Integrating Anomalies Detection system with Anomalies Analyzer system, that is, anomalies in advertisement traffic, which are found by Anomalies Detection system, are passed to be analyzed to Anomalies Analyzer service.

Jul 2012 – Sep 2012   **Yandex**, *Software Engineer Intern*, Advertising Services.
- Developing of backend of eventually consistent consensus system.
- Developing of Anomalies Analyzer service, which helps to find the reasoning slice of anomalies in advertisement traffic.

Skills

Programming languages   **Proficiency level: C++, Python, Perl, R, JavaScript (with JQuery), html, SQL**
Intermediate level: Scala.

ML tools   **Pandas, NumPy, SciPy, scikit-learn, matplotlib, Apache Spark, Vowpal Wabbit, word2vec**.

Other tools   **linux, git, svn, deb packages, gdb, pdb, vim, flask, nginx, mongodb, mac os**.

Languages	**Russian (native), English (proficiency)**.

Publications

May 2015	**Journal of Mathematical Sciences**, *Extension of Endomorphisms of the Subsemigroup $GE_2 + (R)$ to Endomorphisms of $GE_2 + (R[x])$, Where R is a Partially-Ordered Commutative Ring Without Zero Divisors*, Volume 206, Issue 6, pp 711-733 https://link.springer.com/article/10.1007%2Fs10958-015-2348-y.
Sep 2014	**Journal of Mathematical Sciences**, *Endomorphisms of the Semigroup $G_2(R)$ Over Partially Ordered Commutative Rings Without Zero Divisors and with 1/2*, Volume 201, Issue 4, pp 534-551 https://link.springer.com/article/10.1007/s10958-014-2010-0.
2013	**Fundamental and Applicable Mathematics**, *Extension of endomorphisms of the semigroup $\mathrm{GE}_2 + (R)$ to endomorphisms of $\mathrm{GE}_2 + (R[x])$ for the lattice-ordered commutative ring R with a unit and without zero divisors.*, no. 4, pp 155-184 http://www.ams.org/mathscinet-getitem?mr=3431839.

Projects

2017 – now	**RAST – a highly distributed database**, https://github.com/olegtsts/RAST, https://github.com/olegtsts/parallel_programming.

- Project is in the designing state.
- Involves methods of constructing fault-tolerant service.
- Includes:
  - high-level multithreading technique
  - exception-safe design techniques
  - safe memory release techniques
- See the example of code here: https://github.com/olegtsts/parallel_programming/blob/master/lock-free-queue-with-olegts-ref-counting.cpp

2015 – 2016	**Graph Analyzer Utility**, *Mentoring project in Higher School of Economics*, https://github.com/ilyshnikova/graph-analyzer.

- Server-based program, which accepts time series points and detects anomalies on data series.
- Works online with complexity $O(1)$ on point submission.
- Includes human html interface for controlling algorithms, which work on time series.
- Source code: https://github.com/ilyshnikova/graph-analyzer

Git repository: https://github.com/olegtsts/

Olympiads

2011	**International Mathematics Competition for University Students**, Prize winner (third prize).
2011	**Students Olympiad of Higher Algebra**, Prize winner (second prize).
2010	**Students Olympiad of Higher Algebra**, Prize winner (third prize).
Apr 2009	**All-Russian Olympiad of Mathematics**, Prize winner (second prize).
Apr 2009	**Moscow State Olympiad of Mathematics**, Prize winner (first prize).
Jul 2008, 2007, 2006	**Geometrical Olympiad in Honor of I.F.Sharygin**, Prize winner (first prize), three times.
Apr 2008	**All-Russian Olympiad of Mathematics**, Prize winner (first prize).
Mar 2008	**Moscow State Olympiad of Mathematics**, Prize winner (third prize).
Apr 2007	**All-Russian Olympiad of Mathematics**, Prize winner (second prize).
Apr 2006	**All-Russian Olympiad of Mathematics**, Prize winner (third prize).
Mar 2006	**Moscow State Olympiad of Mathematics**, Prize winner (second prize).