

EDUCATION

- **Taras Shevchenko National University** Kyiv, Ukraine
M.S. in Computer Science; GPA: 3.94/5.0
- **Taras Shevchenko National University** Kyiv, Ukraine
B.S. in Computer Science; GPA: 3.98/4.0

EXPERIENCE

- **Facebook** Seattle, WA
Software Engineer
Oct 2019 - Present
 - Was part of Test Infrastructure team and then Continuous Integration Analytics team (CIA).
 - Designed and implemented service that computes Probabilistic Flakiness Score in real-time via Bayesian inference.
 - Scaled PFS service CPU utilization 10x, latency 20x, number of replicas 7.5x via profiling/caching/parallelism.
 - Post with details: <https://engineering.fb.com/2020/12/10/developer-tools/probabilistic-flakiness/>
 - Replaced statistical model with stochastic ML one for sizing(memory-wise) CI workflows.
 - New Job Sizer model reduced memory utilization by 30% and out-of-memory rate by 17%.
 - Achieved another 12% improvement in MSLE by doing feature engineering for Job Sizer model.
 - Prototyped an ML based model for the CI workflow ETA estimation.
 - It reduced MSLE by 50% and allows to control confidence levels of the prediction (thx to Monte-Carlo dropout).
 - This gives a way to show uncertainty to user and not only point-estimate (UX research finds this misleading).
- **Google** Sunnyvale, CA
Software Engineering Intern
May 2019 - Aug 2019
 - Designed and implemented an automatic build memory regression finder that operated at Google scale.
 - Created a developer dashboard for troubleshooting memory regression issues.
 - Was able to automatically(via dashboard) pinpoint culprit changes for recent major regressions.
- **Google** Sunnyvale, CA
Software Engineering Intern
Aug 2018 - Nov 2018
 - Migrated old ML pipeline onto Tensorflow-backed framework TFX. Experience with data processing pipelines.
 - Implemented parallel n-ary search algorithm. Speeded up culprit finder 16x times (on millions of changes).
 - Designed more sophisticated and robust parallel batching algorithm. Reduced tail request latency 3x times.
 - Mined build graph of the whole Google using MapReduce. Did an attack on dependency set similarity problem.
- **Facebook** London, UK
Software Engineer Intern
Jan 2018 - Mar 2018
 - Rearchitected Hack parser to be reactive, allowing parsing to be inlined with the computation of the result.
 - 25% parse time reduction for the Hack type-checker (using most of the file contents) on the full-codebase.
 - Up to 50% speed up for tools that use less information(facts extraction) on hundreds of thousands of files.
 - Developed a toolset to analyze and remove unnecessary build dependencies, resulting in 2x speed up.
- **Microsoft** Redmond, WA
Software Developer Intern
Jul 2017 - Oct 2017
 - Engineered a new workflow to automate raw telemetry data aggregation and transformation.
 - System monitors execution of user-defined query and publishes results back to data warehouse.
 - Used for intermediate metrics aggregation to reduce data volumes and speed up queries.

- **Google** Sunnyvale, CA
Software Engineering Intern *Apr 2017 - Jul 2017*
 - Research on build/test time prediction. Performed data analysis, model evaluation and feature engineering.
 - Created tools for ML models debugging/visualization and core service efficiency evaluation.
 - Investigated and mitigated incidents in complex build infrastructure at Google scale.
- **Google** Mountain View, CA
Software Engineering Intern *May 2016 - Aug 2016*
 - Engineered a service that clusterizes build targets to reduce overall resources usage.
 - Performed evaluation of different batching strategies: memory, run-time optimization.
 - Trained ML models to predict build memory usage and avoid out of memory errors.

SKILLS

- **ML:** DNN, NLP, Stochastic models, Bayesian inference, Tensorflow, TFX, PyTorch, PyTorch Lightning
- **Systems:** Distributed systems, Build/Test infrastructure, CI internals, Build systems, Programming languages
- **Languages:** Python, Java, C/C++, Go, PHP/Hack, OCaml, C#, SQL, Bash, TypeScript, JavaScript
- **Containers:** Docker, Docker Swarm, Kubernetes, RunC, Linux namespaces, Google's Borg, Facebook's Tupperware
- **Data processing:** MapReduce, Apache Beam, Hive, Hadoop, Google Flume, Facebook DataSwarm, Google Cloud SQL, Spark SQL, Microsoft Kusto
- **Misc.:** Algorithms & Data structures, Linux internals, Capture the Flag competitions, Competitive programming

PROJECTS

- **PARCS:** Communication Sequential Processes (CSP) like approach for language agnostic distributed computing.
- **PARCS autodiscovery:** LAN service autodiscovery for nodes in PARCS cluster based on UDP broadcasting.
- **Smart Pacmans:** Visualization of how neural networks can be trained using genetic algorithms.
<https://lionell.github.io/smart-pacmans>
- **Resolution Theorem Prover:** Based on sequential method and operates in classic first-order logic.
- **Pollard-Rho:** Parallel implementation of Pollard-Rho algorithm in Go. **Extra:** Ethereum smart-contract impl.
- **Huffman+RLE:** Small (1% on average) optimization for Huffman algorithm followed by run-length-encoding.
- **Parallel PageRank:** Based on MPI and OpenMP. Ultimate goal was to compute Wikipedia pagerank.
- **Aqua Lang:** Data processing language that uses concepts from relational algebra. Opposite to declarative SQL.