


Dmytro BOGATOV

Software Development Engineer at Amazon |
Ph.D. in Database Security from Boston University

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I am originally from Ukraine. I have completed Bachelor's, Master's and Ph.D. in Computer Science. Working on Doctorate, I have defended the thesis "Secure and Efficient Query Processing in Outsourced Databases" [Bog22], advised by George Kollios, Professor at Boston University. Aside from work, I am serving as a Director and Secretary for [Mriya Inc.](#)  non-profit, managing shipments of medical supplies and equipment to Ukrainian military, territorial defense and civilians affected by the war.

SKILLS

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| Programming Languages | C#, TypeScript / JavaScript, Python, Swift, Java, C / C++, SQL, \LaTeX , Go, Bash / zsh, x86 ASM |
| Frameworks | .NET Core, ASP MVC, SGX, xUnit, Angular, boost::, Google test / benchmark (C++) |
| Common skills | git, Gerrit, docker, HTML, Unix console, VS Code, unit testing |
| DevOps | Ubuntu / CoreOS / CentOS, Kubernetes, CI / CD, automation, NGINX, GitLab admin |
| Graduate classes | Advanced Algorithms, Cryptography, Advanced Database Systems, Advanced Operating Systems, Distributed Systems, Compiler Design, Applied Cryptography, Optimization Methods |

EDUCATION

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| May 2013 | High school (Lyceum 157 in Kyiv) graduation with high distinction. GPA 4.00. |
| Feb 2017 | Bachelor of Science in Computer Science from WPI with high distinction. GPA 3.99. |
| May 2019 | Master of Science in Computer Science with specialization in Cyber Security from BU. GPA 4.00. |
| May 2022 | Doctor of Philosophy in Computer Science (Database Security) from BU.  PUBLICATIONS |

PUBLICATIONS

- [Ach+22] O. Acharya, D. Bogatov, W. Feng, R. Ghosal, A. Jain, A. O'Neill, and H. Zamani. "TinyIPE: Inner Product Encryption for Nearest Neighbor Search". *Work under peer-review*. Oct. 2022.
- [Bog+22] D. Bogatov, G. Kollios, A. O'Neill, and H. Zamani. "Secure Similarity Search in Outsourced Databases". *Work in progress*. Sept. 2022.
- [Bog22] D. Bogatov. "Secure and Efficient Query Processing in Outsourced Databases". PhD thesis. May 2022. doi: 10.48550/arXiv.2206.10753.
- [Bog+21a] D. Bogatov, A. D. Caro, K. Elkhyaoui, and B. Tackmann. "Anonymous Transactions with Revocation and Auditing in Hyperledger Fabric". In: *Cryptology and Network Security*. Springer International Publishing, 2021, pp. 435–459. doi: 10.1007/978-3-030-92548-2_23.
- [Bog+21b] D. Bogatov, G. Kellaris, G. Kollios, K. Nissim, and A. O'Neill. "Epsolute: Efficiently Querying Databases While Providing Differential Privacy". In: *Proceedings of the 2021 ACM SIGSAC Conference on Computer and Communications Security (CCS '21)*. 2021. doi: 10.1145/3460120.3484786.
- [BKR19] D. Bogatov, G. Kollios, and L. Reyzin. "A Comparative Evaluation of Order-Revealing Encryption Schemes and Secure Range-Query Protocols". In: *Proc. VLDB Endow.* 12.8 (2019), pp. 933–947. doi: 10.14778/3324301.3324309.
- [NBK19] O. Narykov, D. Bogatov, and D. Korin. "DISPOT: A simple knowledge-based protein domain interaction statistical potential". In: *Bioinformatics* (July 2019). doi: 10.1093/bioinformatics/btz587.
- [Bog17] D. Bogatov. "Analysis of a Dynamic Voluntary Contribution Mechanism Public Good Game". In: *IPE Journal* 26 (2017).
- [BH16] D. Bogatov and J. R. Hennessy. "Data MATTERS: Customizing Economic Indices to Measure State Competitiveness". In: *WPI Library* (2016).
- [Nur+15] B. Nurbekov, D. Bogatov, J. S. Xu, and R. J. O'Brien. "Investment Trading And Risk Management: Scientifically Developing and Analyzing Trading Systems". In: *WPI Library* (2015).


CONFERENCES / PRESENTATIONS (★ PRESENTED OR SCHEDULED TO PRESENT A POSTER, PRESENTATION OR A LIGHTNING TALK)

- ★ Encrypted Search Workshop at Brown
- ★ EUROCRYPT 2019 in Darmstadt, Germany
- ★ Northeastern Database Day 2019 at MIT
- ★ VLDB 2019 in Los Angeles, USA
- ★ CANS 2021 in Vienna, Austria (virtual)
- ★ Second Workshop on Encryption for Secure Search and other Algorithms
- ★ 23rd Annual Issues in Political Economy Conference
- ★ 2016 IEEE MIT Undergraduate Research Technology Conference
- ★ CS Talk at Brown University (by invitation)
- ★ ACM CCS 2021 in Seoul, Korea (virtual)

PAPER REVIEWS

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| 2019 | IEEE ICDE | 2022 | SIGMOD/PODS | 2022 | SIGMOD/PODS |
| 2020 | SIGMOD/PODS | 2022 | IEEE ICDE | 2023 | SIGMOD/PODS |
| 2021 | SIGMOD/PODS | 2022 | SIGMOD Reproducibility | 2023 | SIGMOD Reproducibility |
| 2021 | SIGMOD Reproducibility | 2022 | IEEE TDSC | | |


PROFESSIONAL EXPERIENCE (RECENT / RELEVANT)

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| Present May 2022 | Software Development Engineer (SDE II, Redshift team), AMAZON WEB SERVICES, Boston, MA <ul style="list-style-type: none">> Query processing optimization> Security and Privacy at Redshift> Dynamic Data Masking (DDM)  <p>research databases big data performance distributed systems</p> |
| October 2021 June 2021 | Software Development Engineer Intern (Redshift team), AMAZON WEB SERVICES, Palo Alto, CA (virtual) <ul style="list-style-type: none">> Query processing optimization> Row Level Security (RLS)  <p>research databases big data performance distributed systems</p> |
| November 2020 August 2020 | Software Development Engineer Intern (Redshift team), AMAZON WEB SERVICES, Palo Alto, CA (virtual) <ul style="list-style-type: none">> Query processing optimization> Row Level Security (RLS)  <p>research databases big data performance distributed systems</p> |
| December 2019 October 2019 | Applied Scientist Intern (Crypto Algorithms team), AMAZON WEB SERVICES, Seattle, WA <ul style="list-style-type: none">> Computations over encrypted data> Structured Symmetric Encryption schemes <p>research encrypted search databases</p> |
| September 2019 July 2019 | Cloud & Computing Infrastructure Intern (Crypto), IBM RESEARCH — ZÜRICH, Rüschlikon, ZH, Switzerland <ul style="list-style-type: none">> Anonymous Transactions with Revocation and Auditing in Fabric> Developed production-grade cryptographic Go library  <p>research blockchain hyperledger fabric delegatable credentials Go identity mixer</p> |
| Present September 2014 | All my past working experiences, ALL OVER THE WORLD, USA, Ukraine, Switzerland <ul style="list-style-type: none">> Ph.D. Student / Research Assistant @ Boston University (<i>Boston, MA, USA</i>)> Web / DevOps developer @ RedwoodEDA (<i>Shrewsbury, MA, USA</i>)> Co-founder / web developer @ Shevastream (<i>Kyiv, Ukraine</i>)> Web developer @ Worcester Polytechnic Institute (<i>Worcester, MA, USA</i>)> Web developer / Quantitative analyst @ TradeStation Securities (<i>Plantation, FL, USA</i>)> Senior Teaching Assistant @ Computer Science Department at WPI (<i>Worcester, MA, USA</i>) <p>teaching web development startup devops</p> |

SELECT AWARDS

- * pVLDB 2021 Reproducibility Award at BU
- > Chair's Fellowship at BU
- > "Outstanding Junior" at WPI
- > Dean's List all semesters at WPI
- > Charles O. Thompson Scholar at WPI

ACTIVITIES

- > Director / CFO / Clerk at [Mriya Inc.](#)  non-profit
- > Officer / IT manager at campus org at WPI
- > Career Fair Volunteer at WPI

LANGUAGES

English ●●●
Ukrainian ●●●
russian ●●●

PROJECTS

εPSOLUTE: DIFFERENTIALLY PRIVATE SECURE RANGE QUERIES

SEP 2018 — OCT 2021

github.com/epsolute  [publication](#) 

Developed ORAM-based differential privacy range and point query engine

C++ ORAM differential privacy range queries

- ANONYMOUS TRANSACTIONS IN BLOCKCHAINS** JUN 2019 — DEC 2021
github.com/IBM/dac-lib [publication](#)
 Developed production-grade Go cryptographic library
 Go blockchain research cryptography privacy
- EVALUATION OF SECURE RANGE QUERY PROTOCOLS** MAY 2017 — FEB 2018
ore.dbogotov.org [publication](#)
 Analyzed, implemented and evaluated 5 ORE schemes and 5 protocols
 C# .NET Core research ORE range query protocols
- STATUS SITE** FEB 2017 — SEP 2017
status.dbogotov.org [source code](#)
 A multi-component system for collecting and analyzing the infrastructure health
 C# .NET Core ASP MVC TypeScript Kubernetes micro-services
- SHEVASTREAM** JAN 2016 — MAY 2017
shevastream.com [source code](#)
 A small retail-oriented startup that sells custom-designed notebooks
 startup .NET Core web C# PostgreSQL
- MATTERS** JAN 2016 — OCT 2016
mhtc.org/MATTERS/ [source code](#)
 A web tool that lets users interactively do an extensive analysis over economic data collected for all states
 Spring framework Java statistics data analysis web PostgreSQL
- MANDELBROT** SPRING 2016
[try it](#) [source code](#)
 A major class project. A web tool that interactively generates the Mandelbrot fractal and allows to “walk” and “dive” in it.
 .NET Core web C# TypeScript
- LOTS OF OTHER DIFFERENT PROJECTS** ALL THE TIME
[see my portfolio](#) [see me on GitHub](#)
 I’m working on different projects all the time! See all of them on my personal website dbogotov.org
 have fun

“ ACADEMIC REFEREES

George Kollios

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