Aleksey Tyurin

Software Engineer
Saint Petersburg
+7(964) 434-3886 | aleksey.tyurin.spb@gmail.com | Tiltedprogrammer | aleksey-tyurin

Education

Saint Petersburg State University — *Saint Petersburg, Russia*
Master of Software Engineering — *2020 – Present*

Saint Petersburg State University — *Saint Petersburg, Russia*
Bachelor of Software Engineering, GPA: 4.7/5.0 — *2016 – 2020*

Bachelor's thesis

- "Practical study of AnyDSL GPGPU program partial evaluator". Evaluated the effect of metaprogramming techniques on optimizing GPU programs : achieved up to 8x speed up in some scenarios, revealed GPU's architectural peculiarities that affect the success of such optimizations

Coursework

- Integrated syntax support for *Vyper* smart contract programming language in IntelliJ IDEA: syntax highlighting, syntax analysis, integration with the compiler

Work experience

JetBrains Research — *Saint Petersburg, Russia*
Researcher at Programming Languages and Tools Lab — *July 2019 – Present*

- In progress of designing a domain-specific language and domain-specific processor for sparse linear algebra acceleration
- Studied metaprogramming techniques and GPGPU programming to come up with the optimization of GPU programs using partial evaluation. Achieved up to 8x better performance in some scenarios and used microbenchmarking to reveal main bottlenecks and architectural peculiarities that affect the success of such optimizations. The results constitute the Bachelor's thesis and have been reported at *PPoPP'20*
  - `www.research.jetbrains.org/groups/plt_lab/projects/pe-for-gpgpu/`
- The participant of weekly seminars on formal languages
- The participant of Summer School on Probabilistic Programming

Academic achievements

- Tyurin A.V., Tyulyandin I.V., Maltsev V.S., Kirilenko J.A., Berezun D.A. Overview of the Languages for Safe Smart Contract Programming. Proceedings of the Institute for System Programming of the RAS (Proceedings of ISP RAS). 2019;31(3):157-176.
  `https://doi.org/10.15514/ISPRAS-2019-31(3)-13`

- Aleksey Tyurin, Daniil Berezun, and Semyon Grigorev. 2020. Optimizing GPU programs by partial evaluation. In Proceedings of the 25th ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming (PPoPP '20). Association for Computing Machinery, New York, NY, USA, 431–432.
  `https://doi.org/10.1145/3332466.3374507`

Technical skills

Programming languages

Kotlin, C/C++, Python, Haskell

Mathematics

Linear algebra, probability theory, calculus, mathematical logic

Languages

- English (fluent), Russian (native)