

ALEXANDER BUYANTUEV

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EDUCATION

HSE University

Bachelor of Applied Mathematics and Computer Science

Saint-Petersburg, Russia

Sep. 2020 - June 2024

- **Relevant courses:** *Algorithms and Data Structures, C/C++, Java, Python for Web, Python for Backend, Machine Learning, Databases, Computer Networks, Calculus, Linear Algebra, Discrete Mathematics, Probability Theory, Math Statistics*
- **Yandex Data School courses:** *Machine Learning, Natural Language Processing, Reinforcement Learning*
- **AI Talent Hub courses:** *Project Management in Data Science*

WORK EXPERIENCE

RL Researcher

Huawei R&D, Network Scheduling Team

Sep. 2023 - Present

Saint Petersburg, Russia

Linear erasure codes construction using reinforcement learning | Python

Sep. 2023 - June 2024

- Developed RL-FEC software to design linear codes for different conditions and limitations of communication network
- Researched the application of different RL algorithms (DDQN, SAC, PPO) for designing linear erasure codes
- Developed **FastAPI** app to evaluate the performance of linear codes which helped to **speed up** the training up to **50 times**
- **Increased the accuracy** of evaluation from 10^{-3} to 10^{-6}
- **Compared** obtained by RL-FEC linear erasure codes with FlexFEC, LDPC and Reed-Solomon codes in BEC and Simple-Gilbert loss model
- **Showcased the advantage** of RL-FEC software as a **universal** approach for linear code construction

Software Engineer Intern

Huawei R&D, Cangjie Team

Nov. 2022 - Sep. 2023

Saint Petersburg, Russia

CSV support for Data-Driven Testing in Cangjie | Cangjie

Sep. 2023

- Implemented CsvParser in Cangjie to **parse** data from CSV files
- Developed CsvStrategy to provide data for unit tests and **contributed** it to Cangjie Test Framework

LLVM IR decompiler for Cangjie | C++, Python, GoogleTest

Nov. 2022 - June 2023

- Designed a tool to represent LLVM IR module in C-like format that restores packages, classes and functions from Cangjie source code to **speed up** compiler's generated code analysis
- **Created test cases** for the tool from 300+ projects on Cangjie
- Developed a parallel testing framework that runs 30 test cases with 100000 lines each under 1 minute to **fix bugs** in my tool
- **Distributed** the tool inside Cangjie Team for analysis of compiler's generated code by other developers

PROJECTS

PDF Editor with L^AT_EX support 🌐 | Java

Mar. 2022 - June 2022

- Designed a converter of UI objects to PDF document to **transfer** project's data to PDF file
- Implemented rendering of L^AT_EX equations to **allow** users to work with math formulas
- Developed a utility to download and save user's files to **enable** users to save their projects
- Added font support in UI and PDF to **empower** the customization of documents

Messenger with Trello boards 🌐 | C++, PostgreSQL, Trello API

Jan. 2021 - May 2021

- Created database to **store** users' information
- Implemented curl library wrapper to work with Trello API to **support** Trello boards
- Developed server's functionality to **handle requests** to the database

Parser generators comparison 🌐 | Python, Java, ANTLR4, Parglare

Oct. 2021

- Researched basic functionality and limitations of ANTLR4 and Parglare to **compare** them with other parser generators
- Compared generators' performance on ambiguous grammar recognition to **collect** data for the report
- **Described** research results in the report

SKILLS

Programming languages: Python, C/C++, Java

Technologies and Frameworks: git, PyTorch, StableBaselines, Gymnasium, Docker, FastAPI, LangChain, SQL

Languages: Russian, English (C1)