

DENIS KILSEEV

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Education

Purdue University

Bachelor of Science in Computer Science

Aug. 2021 – May 2025

West Lafayette, IN

Relevant Coursework

- Data Structures & Algorithms
- Computer Architecture
- Compilers: Principles & Practice
- Information Systems
- Concurrency & Parallelism
- Computer Networks

Experience

Cardiff University Investment Club

Software Engineer

August 2024 – Now

Remote, UK

- Developed a system for ticker data fetching using TradingView API in Python and a trading strategy backtesting platform using historical financial data.

Environmental Systems Research Institute, Inc. (Esri)

Software Development Intern

May 2024 – August 2024

Redlands, CA

- Tested technical limitations of PostgreSQL Apache AGE. Benchmarked Apache AGE against Neo4j and ArangoDB identifying strengths and weaknesses of Apache AGE as a graph database.
- Developed a custom JDBC driver allowing connecting PostgreSQL Apache AGE instances to ArcGIS Enterprise.
- Researched PostgreSQL RDBMS, enhancing understanding of its internal implementation and architecture for quicker execution of queries through the Apache AGE JDBC driver, improving execution time by 200%.
- Implemented 40+ unit tests and 10+ integration tests using JUnit, achieving 100% coverage of JDBC's APIs.

Purdue University

Software Development Intern

May 2023 – April 2024

West Lafayette, IN

- Created a website using HTML/CSS, JavaScript, PHP, Bootstrap, and WordPress to design and build a dynamic and responsive website that serves 60,000 students and faculty members at Purdue.
- Used ArcGIS APIs to integrate responsive map into website that visualized dataset of 15,000 trees around Purdue Campus.
- Developed an automated image-processing robot using Python, Raspberry Pi, SQLite, Slack API that serves to 80 researchers in the agriculture department.
- Engineered an automated tool to visualize and send a daily report of test results to team members using HTML/CSS and Javascript.

Projects

C Compiler | C++, LLVM, Lex

September 2024

- Created C-subset compiler using C++, Lex, and LLVM. Developed a recursive-descent parser for LL(1) grammar.
- Engineered a C++ level IR allowing for further LLVM IR lowering and optimization.
- Utilized LLVM optimization passes to decrease final number of assembly instructions.

Scala Compiler | Scala, sbt, x86_64 Assembly

December 2023

- Developed a fully functional programming language inspired by Scala with an error-prone parser, semantic analyzer, and interpreter.
- Extended the language capabilities by engineering a compiler that translated custom Scala-like code to x86_64 Assembly language.

Custom Shell | C, Yacc, Lex

November 2023

- Using Lex developed a parser that allows for robust and flexible command execution.
- Using Yacc and C integrated I/O redirection, piping, and background processing that enhanced user control and system interaction.
- Implemented error handling mechanisms with robust error messages to ensure smooth UX.

Technical Skills

Languages: Python, Java, C/C++, Scala, HTML/CSS, JavaScript, SQL, openCypher

Cloud Services: AWS, Google Cloud

Databases: PostgreSQL, MongoDB, Neo4j, MySQL, SQLite

Technologies/Frameworks: LLVM, Jest, JUnit, Linux, Jenkins, Git/GitHub, Express.js, ReactJS