# ADAM SOLIEV

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## Work Experience

**CME Group** **Chicago, IL**
**Software Engineer II** **2022/01 – Present**

- Enhanced real-time settlements pipeline, ensuring efficient ingestion, enrichment and transformation. It processed 400K+ messages/second across multiple data sources and powered major internal systems, such as Risk, Clearing, Market Data and CME Group website
- Co-designed and developed messaging-middleware-agnostic library configurable through XML file, facilitating seamless switch from on-prem TIBCO FTL to Apache Kafka in GCP and reducing maintenance complexity and time
- Architected Java-based Kafka injector to streamline unit testing, enabling precise test data injection and validating application behavior against edge cases, reducing testing time by 50%
- Automated local GCP env setup using shell scripts, improving developer and QA engineer experiences and CI/CD
- Led migration of Settlements Gateway system from on-prem to GCP, achieving prod-parallel status in 4 months
- Coordinated with cross-team stakeholders to develop integration and performance testing strategies in GCP, achieving key milestones early, including prod-parallel status and successful DR testing with external customers
- Led regular meetings with BAs to understand 10+ new instrument requirements and plan feature roadmaps
- Facilitated onboarding of new engineers through technical '101' sessions and guided their early career development

**Software Engineer** **2021/05 – 2022/01**

- Created microservice in GCP that generated 20+ scheduled reports daily and notified receivers through email
- Developed cloud-native Spring Boot application for accessing Settlements Gateway databases through REST API, replacing direct access used by internal teams and resulting in significant increase in data access control
- Optimized SQL queries by rewriting them using indexes, joins, and partitioning and REST APIs by implementing pagination and server-side caching using Redis, resulting in 2x reduction in response time

## Projects

**RISC-V computer system from scratch on FPGA** (github.com/adamsoliev/ganymede)

- Developed autograd engine that implements backpropagation over DAGs using NumPy and neural networks library on top of it with PyTorch-like API
- Wrote C compiler for 64-bit RISC-V architecture that partially implements the C language standard, including support for simple declarations, all expressions, all statements and recursive functions
- Designed 5-stage pipelined 64-bit RISC-V processor on Arty A7 FPGA, supporting RV64I instructions with forwarding for RAW hazards, stalling for load-use hazards and static branch predictor
- Implemented operating system that runs on 64-bit RISC-V processor with support for round-robin scheduling, M-mode Sv39 paging, FAT file system, syscalls and user space programs

## Skills

- **Languages**: Java, Python, C, RISC-V assembly, SystemVerilog
- **Tools**: git, GCP, Kafka, Spring Boot, PostgreSQL, Redis, MongoDB, PyTorch, NumPy

## Education

**Baruch College** **New York, NY**
*BBA in Computer Information Systems and Mathematics*

- Courses: Computer Architecture, Operating Systems, Programming Languages, Introduction to Machine Learning, Graph theory, Combinatorics, Computational Methods in Probability, Complexity and Computational Models

## Publications

- Zerhouni, Y., Islam, S., Elzoeiry, Z., **Soliev, A.**, & Navarro, A. (2020, August). Sorptive removal of radioactive ions from aqueous solutions by biopolymers. Current Topics in Biotechnology (Vol. 11)
- **Soliev, A.**, Shahrear, S., Navarro, A., Demeke, T., & Moreno, B. (2018, August). Bioremoval of dibenzothiophene from synthetic fuels by modified clays. In Abstracts of Papers of the American Chemical Society (Vol. 256)