Andrei Maximov

https://github.com/andreimaximov

EDUCATION

UC SAN DIEGO

B.S. in Computer Science
October 2014 - June 2018 | La Jolla, CA
Jacobs School of Engineering
Magna Cum Laude
Cum. GPA: 3.85 / 4.0
Major GPA: 4.0 / 4.0

LINKS

https://github.com/andreimaximov
https://linkedin.com/in/andreimaximov/

COURSEWORK

Advanced Data Structures
Advanced Graphics
Algorithms
Compilers
Computer Architecture
Deep Learning
Networked Services
Operating Systems
Parallel Computing

SKILLS

PROGRAMMING

Proficient
C++ • Rust • Java • Python
Experience
OCaml • Haskell • Scala • Lua • JavaScript • PHP

TOOLS

Datastores
PostgreSQL • Redis • Memcached • Kafka • ZooKeeper • HDFS
Compute
Apache Spark • Apache Storm • Cascading (Hadoop MapReduce)
VCS
Git • Mercurial

EXPERIENCE

FACEBOOK | Software Engineering Intern

September 2017 – December 2017 | Search Ranking Infra | Menlo Park, CA

- Developed a C++ stream processing platform for efficiently approximating top-K elements in a sliding window of millions of unique candidates.
- Released it to Facebook engineers as a generic, easy to use, config-driven, and fully-managed service.
- Deployed it to production and enabled realtime updates for use cases such as top clicked search results.

QUORA | Software Engineering Intern

June 2017 – September 2017 | Infra/Data Platform | Mountain View, CA

- Developed a system for monitoring realtime and historic infrastructure metrics using Scala, Apache Spark, and Kafka to improve reliability and scalability compared to existing systems.
- Improved disaster mitigation utilities with MySQL query blacklisting using Python and ZooKeeper.

GOOGLE | Software Engineering Intern

June 2016 – September 2016 | Chrome Apps | Mountain View, CA

- Developed an ORM abstraction for integrating the Apps Admin SDK as a datastore into App Maker, a GUI based app builder for enterprise customers.
- Wrote a Java + JavaScript based query engine on top of the Admin SDK to allow for filtering and entity relationships with other datastore backends.

EFOLDER | Software Developer Intern

June 2014 – May 2016 | Mountain View, CA

- Developed a prototype for a realtime graph-based Lambda Architecture metrics system using Java, Hadoop MapReduce for batch computation, and AWS Lambda + Kinesis for stream processing/realtime updates.
- Implemented an automated billing system using PHP and PostgreSQL responsible for processing a majority of eFolder's revenue.

PROJECTS

PATHTRACER | C++ Rendering Engine

- A physically accurate rendering engine with support for Monte Carlo global illumination, fresnel reflections/refractions, and texture mapping that probabilistically approximates the rendering equation.
- Uses Bounding Volume Hierarchies for improved ray-intersection performance and a worker-thread architecture for parallelizing chunk rendering.

UTHREAD | C++ fiber/user-space threading library

- Uses cooperative scheduling with fast context switching (30M+ thread context switches/second on a single x86-64 core)
- Provides user-space synchronization via mutexes, condition variables, etc.
- Provides a non-blocking IO API for timers, sockets, etc. via libevent

USRNET | Rust user-space network stack

- Provides a rich callback-based API of raw ethernet, IP, UDP, and TCP sockets similar to that of libevent.
- Includes arping, ping, traceroute, netcat, and echo server examples.
- Exchanges raw ethernet frames via a Linux TAP using the OS kernel as a router.
- TCP sockets are in progress, currently support connection establishment.