Alexander Kampas

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Work Experience

Bloomberg **ETN FIXNET** **July 2022 - November 2024**

- Maintained and expanded FixNet, Bloomberg's trading network implementing the FIX protocol
- Built a performant cache to quickly provide high quality information about financial securities to many clients
- Designed topology for new FixNet nodes in Tokyo, London, simultaneously formalized an automated datacenter setup workflow, saving weeks of multiple engineers' time for each setup
- Ported legacy Solaris and IBM services to run on Linux, reduced operating costs while increasing reliability

Apple **iOS System UI Performance Co-op** **February - August 2021**

- Optimized the memory usage of iOS processes relating to user interface
- Developed tools for optimizing iOS and macOS memory management

Education

Carnegie Mellon University **Fall 2017 – Spring 2022**

- Bachelors of Computer Science and Arts – Computer Science and Music Performance
- University Honors | BCSA College Honors | 3.67 Cumulative GPA | Full Scholarship

Courses

- **Distributed Systems** | Scarcity, scheduling, concurrency, and concurrent programming, abstractions and modularity, imperfect communication and other types of failure, protection from accidental and malicious harm, optimism, and the use of instrumentation and monitoring and debugging tools in problem solving.
- **Computer Systems** | Machine-level code and its generation by optimizing compilers, performance, evaluation and optimization, computer arithmetic, memory organization and management, networking technology and protocols, and concurrent computation.
- **Parallel and Sequential Data Structures and Algorithms** | Algorithm design techniques, parallel algorithms, analyzing costs, graph algorithms, parallel data structures, randomized algorithms.
- **Computer Security** | Analysis of Software Security, Cryptography, System/Network Security, and Human Factors. Identifying security vulnerabilities, developing exploits and defenses
- **Great Ideas in Theoretical Computer Science** | Formal study of computability and computational complexity
- **More** | Machine Learning in Practice, Natural Language Processing, Principles of Functional Programming, Principles of Imperative Computation, Concepts of Mathematics, Fundamentals of Programming and Computer Science, Matrices and Linear Transformations, Computer Music, Engineering Statistics and Quality Control

Projects

- **Distributed Bitcoin miner** and underlying proprietary server-client oriented network protocol (GoLang)
- Developed and implemented an **algorithm that composes music** in the style of J.S. Bach (Python)
- **A proxy server** supporting web object caching, multiple concurrent connections (POSIX, C, sockets)
- **English question-answering system**, given a Wikipedia article and a list of questions pertaining to the article, the system outputs answers to those questions (Python)
- **Dynamic heap memory allocator** (alternative to malloc, realloc, calloc, free) (C)
- **Music Director** for *Le Cabaret du Hot Club d'Alex*, a monthly jazz concert in Manhattan

Languages and Technologies

- **Languages** | C / C++ / Obj-C, Python, Go, x86 Assembly, Standard ML
- **Software and concepts** | GNU/Linux & UNIX, Distributed Systems, Concurrency, Networking, Systems-level C, FIX Protocol, Binary and Net Exploit Development, Functional Programming, Sockets, Git, Machine Learning