

## SUMMARY

Software developer skilled in Java, Python, distributed systems, and scalable analytics. Experienced in designing and implementing effective solutions for complex technical environments. Eager to deepen knowledge in machine learning and natural language processing, with a focus on tackling diverse challenges in AI development.

## SKILLS

### Languages

Java, Python, SQL, Bash / Shell, C#, Go

### Technologies

Maven, Kubernetes, Hadoop, Hbase, Dremio, MongoDB

## EDUCATION

8/2016 - 5/2020 **Washington University in St. Louis**  
Computer Science

**Bachelor of Science**

## PROFESSIONAL EXPERIENCE

8/2020 - 3/2023 **IMC Financial Markets** **Software Developer**  
*Top global high frequency trading and market-making firm*

- Led end to end development on the order routing team. Maintained and developed features for processes driving millions in trade revenue.
- Spearheaded project creating and maintaining trade analysis pipelines ingesting up to 20 million daily entries of multi-dimensional trade data through noSQL datastores and ETL layers.
- Scheduled meetings, set project goals, and assigned tasks in order to ensure delivery of projects requiring collaboration and expertise across data, software, and trading teams.
- Ensured trading uptime during critical software failures. Performed root cause / performance analysis to future-proof trading failures.

6/2019 - 8/2019 **IMC Financial Markets** **Software Developer Intern**

- Developed Kubernetes orchestration for automating the lifecycle of critical trading deployments in order to facilitate a company wide migration to Kubernetes.
- Managed a product rollout migrating 80% of company deployments to the new automation. Coordinated with team leads across international offices to migrate thousand of deployments.
- Created testing infrastructure to ensure reliability and safety in ecosystems where downtime results in multi-million dollar losses of trade revenue.

5/2018 - 8/2018 **Local Backhaul Networks** **Software Developer Intern**  
*Advanced network performance monitoring and SLA compliance solutions provider*

- Designed and implemented UI components using JavaScript and PHP to integrate new functionality.
- Conducted security audits of the codebase, addressing frontend vulnerabilities including XSS, SQL injection, and unsafe query practices.
- Evaluated and recommended database solutions to support robust and scalable long-term data retention.

8/2017 - 5/2020 **WUSTL Department of Computer Science** **Teaching Assistant**

- Supported Computer Science II, Introduction to Parallel and Concurrent Programming, and Cloud Computing with Big Data Applications, covering concepts such as parallelism, synchronization, distributed systems, cloud architectures, and big data tools.
- Assisted students across multiple courses by breaking down complex concepts into accessible explanations, fostering deeper understanding of course material.
- Led lab sessions to guide students through hands-on exercises, reinforcing theoretical knowledge with practical applications.
- Graded assignments, provided constructive feedback, and addressed gaps in student learning.

## ADDITIONAL SKILLS & COURSEWORK

Agile development

Root Cause Analysis

Project Management

Collaboration

Data Structures and Algorithms

Concurrent Programming

Machine Learning

Cloud Computing

## RESEARCH EXPERIENCE

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- 1/2019 - 12/2019    **WUSTL Department of Computer Science**    **Undergraduate Researcher**  
*Sentiment Analysis for CS Education: Developing student risk factor measurements*
- Researched methodologies for automatically detecting at risk students with respect to academic performance using data extracted from student forum and survey data .
  - Created pipelines for extracting, aggregating and visualizing data from 2000 students in Python using *nltk* and IBM Watson NLP.
  - Computed model-based sentiment and tone analysis for cross course and cross semester analysis to measure student risk factors.
- 5/2017 - 8/2017    **NSF REU in Big Data Analytics**    **Undergraduate Researcher**  
*Executing Big Data Applications on Heterogeneous Architectures*
- Translated and optimized legacy C code into C++/OpenCL for improved performance on heterogeneous CPU and GPU architectures.
  - Conducted benchmarking to evaluate and enhance data transformation speeds across CPU and GPU platforms.

## PROJECTS

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- Python    **7 Wonders Board Game Simulation**    **GitHub: kzfubar/seven-wonders**  
*Simulated the 7 Wonders board game for gameplay analysis and bot training.*
- Developed an asynchronous Python server and client with a custom protocol for online play.
  - Built analysis tools to evaluate card value and trained AI agents to optimize gameplay strategies.
  - Designed and implemented a *unittest*-based framework to ensure game logic consistency.
- C#    **Code Golf Chess Engine**    **GitHub: kzfubar/Chess-Challenge**  
*Created a compact chess engine for the SebLague Chess Challenge, achieving 2000 Lichess Elo.*
- Implemented alpha-beta pruning and transposition tables to optimize move evaluation.
  - Designed compression algorithms to minimize code size and maximize functionality.
  - Researched advanced chess engine patterns to meet performance constraints in bullet time.

## ADDITIONAL EXPERIENCE

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- 1/2024    **NOLS Patagonia - National Outdoor Leadership School**    **Mountaineering and Leadership Education**
- Completed a 30-day course focusing on technical mountaineering skills, group leadership, and risk management.
  - Practiced team-building and decision-making under physically demanding and high-stress scenarios.
- 5/2023    **NOLS Alaska - National Outdoor Leadership School**    **Backpacking and Leadership Education**
- Completed a 14 day curriculum in backcountry travel, risk management, and leadership development.
  - Practiced conflict resolution and effective communication during extended team expeditions.
  - Completed a certification program in Wilderness First Aid, focusing on emergency response for injuries and illnesses in remote settings.