Sultan Alzoghaibi

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TECHNICAL SKILLS

- **Languages:** Java, TypeScript, JavaScript, Python, C++, SQL, HTML/CSS, JSON, YAML, XML, C
- **Frameworks:** Spring Boot, React, Next.js, Tailwind CSS, JUnit, Node.js, Motion
- **APIs & Integrations:** RESTful APIs, gRPC, WebSocket, Slack API, Stripe API, OpenAI API, Protocol Buffers
- **Libraries & Tools:** Git, Bash, Playwright, Figma, Visual Studio Code, IntelliJ IDEA, Clion, PyCharm, pgAdmin
- **Cloud & Deployment:** AWS (ECS Fargate, EKS, EC2, ECR, CloudWatch, IAM), Terraform
- **Infra & DevOps:** Docker, Kubernetes, PostgreSQL, Redis, Minikube, NGINX, Linux, TCP/IP, ngrok

EDUCATION

Bachelor of Science, Computer Science   **Sep. 2022 – Present**
University of Calgary, Alberta

- Science **Co-op Program** | Dean's List | **GPA: 3.96** (2024-25 Academic Year)
- Relevant courses: Programming in Python, Object-Oriented Programming in Java, Data Structures and Algorithms, Intro to Software Engineering, Info Security & Privacy
- Award: 2nd place out of 43 Teams | Div. 2 | Alberta Collegiate Programming Competition 2024

PROJECTS

Distributed Slack Survey Platform (In Progress) | Spring Boot, AWS EKS, Kubernetes, gRPC, PostgreSQL, Redis, C++, NGINX, Terraform

- Architected and deployed a scalable Slack-integrated team health checking platform on **AWS EKS,** routing POST requests through an **AWS Application Load Balancer** (ALB) and **NGINX Ingress Controller** to Spring Boot pods, which can delegate to **gRPC C++ microservices** or cache/store via Redis and PostgreSQL.
- Simulated Slack POST requests in a high-load test, averaging **2,430 RPS** across **109,480 requests** in 45s, with **95th percentile latency of 417ms** and **1.31% error rate**—distributed across **30+ EKS pods** behind NGINX and scaled via HPA with custom YAML.
- Integrated Slack slash commands via REST into a **multi-threaded** Spring Boot server, routing requests to **5-schema PostgreSQL** and Redis cache layers, cutting repeated DB lookups and reducing latency from ~25ms to **~2ms (~92% faster)**, monitored via Redis Insight and pgAdmin.
- Cached Team scores are then sent via **gRPC** to a highly optimized **C++ microservice** that computes a variance-adjusted average and returns the result in **~0.098ms** (*localhost, 100k request warmup).
- Replicating full EKS deployment using **Terraform** to implement Infrastructure as Code (IaC), enable faster re-deployments, and version-control infrastructure changes.
- **Links:** 4min 109k load-test | 3min dev-vlog | Draft System Design FigJam | GitHub |C++ microservice GitHub

Horizontally Scaling Matchmaking Distributed System | Java, JavaFX, Docker, AWS ECS Fargate, CloudWatch, AWS SDK

- Deployed a SearchServer that creates and pairs players to a dedicated Docker GameServer container on **AWS ECS**, resulting in **0 coupling** between matchmaking and each gameplay session.
- Implemented **dynamic warm pooling** using a Queue<IpAddress> per game mode, reducing GameServer pairing time by **99.1%** (~46s →0.4s). The system **automatically scales up or down pool size** based on the server load.
- Connected players using a **multi-threaded** HashMap<gameMode, List<Player>> and event-driven threads, enabling **concurrent matchmaking** with **sub-950ms latency** under load.
- In GameServer and Player instances, **multi-threaded** a chat feature on a separate port with real-time chat running in parallel with turn-based sequencing, while maintaining latency below **280ms.**
- **Links:** 2min demo video |GitHub |Portfolio site

EXPERIENCE

Full-Stack Software Developer   **Jan. 2025 – Apr. 2025**
TechStart UCalgary (Club), Calgary, Alberta | Website | GitHub

- Migrated from React with CSS to **Next.js with Tailwind**, leveraging SSR to boost SEO (**~25%**) and reducing load times (**~30%**).
- Built a **Stripe API** integration using **GET/POST RESTful API endpoints**, reducing average transaction time by **2 minutes** compared to Google Forms and enabling new item additions with **0 coding** via Stripe's dashboard.
- Collaborated in an Agile team of 5, applying Git best practices and clear communication to ensure 0 bugs were pushed to main, maintaining stable releases.
- Served for 8 months as VP UX/UI Design at TechStart; after being mentored by a UX/UI graduate, took initiative to create and lead workshops on user research, UI heuristics, and **Agile UX/UI** practices, receiving **83% positive feedback**.