

Illia Karpenkov - Full-Stack Developer, Team Lead, Architect

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Team / Tech Lead

Large Canadian Retailer | 2025 - Present | Vancouver, BC (Hybrid)

- Leading a data engineering team responsible for the modernization of enterprise retail analytics platforms.
- Currently designing and implementing a cloud-native ELT/ETL architecture across multiple business domains.
- Mentoring team members on best practices for cloud development and Infrastructure as Code (IaC).
- Established CI/CD pipelines to manage deployment across multiple environments.

Stack: AWS (AMI, S3), Python, Java, PostgreSQL, Databricks, Snowflake, Apache Airflow, Lenses/Kafka, Data Wrangler, Gitlab, Podman, k8s, VSCode, Github Copilot, WSL.

Senior Cloud Engineer

Boeing (Contract) | Oct 2023 - Present | Vancouver, BC (Hybrid)

- Led data analytics pipeline reengineering efforts using Google Cloud Platform to modernize legacy systems.
- Re-engineered flight data analytics pipelines, enabling real-time telemetry processing from ARINC 717/767 recorders.
- Migrated legacy data ingestion pipelines to Databricks/Spark, improving data processing speeds by 4x and reducing infrastructure overhead.
- Automated data collection, transformation, and storage workflows using Google Cloud Functions, Pub/Sub, and Datastore, reducing manual interventions by 80%.
- Implemented Terraform-based IaC for automated infrastructure provisioning.
- Optimized API-driven data ingestion using Flask and PostgreSQL.

Stack: Python, pytest, Flask, Swagger/OpenAPI, PostgreSQL, SQLAlchemy, Terraform, Spark, Databricks, Docker.

Software Engineer

Microsoft (Contract) | Jan 2022 - Dec 2022 | Vancouver, BC

- Enhanced scalability, reliability, and deployment efficiency of an online community moderation platform processing 120 billion transactions per month.
- Supported multi-cloud integration initiatives (AWS and Azure) to improve API latencies.
- Refactored a monolithic Tornado/Angular application into scalable microservices on Azure AKS & AWS EKS.
- Utilized Kafka and Event Hubs for asynchronous/parallel content processing.
- Contributed to the migration of CI/CD pipelines from GitLab to Azure DevOps.
- Automated performance test scenarios and optimized CI/CD workflows, streamlining release cycles by introducing automated testing, feature flags, and canary deployments (Flagger), reducing deployment failures by 40%.
- Developed ML-powered sentiment analysis services using fastText.
- Reduced infrastructure costs by 25% by optimizing Kafka & Event Hubs.

Stack: AWS (EC2, S3, EKS, CloudWatch), Azure (DevOps, AKS, EventHubs), Python, Docker, Kubernetes, Terraform, Kafka.

Software Engineer

Freelance | Jan 2020 - Jan 2022 | Remote

- Implemented software for data collection, caching, and processing pipelines.
- Implemented and experimented with Natural Language Processing (NLP) tools (OpenAI Whisper, NLTK, Spacy, LMStudio) to process proprietary data sets.

Stack: Python, SQLAlchemy, Pandas, Selenium, Jupyter, Matplotlib.

Lead System Engineer

Ziva Dynamics | Jan 2018 - Jan 2020 | Greater Vancouver

- Engineered core systems for creating lifelike virtual characters with physics-abiding secondary dynamics.
- Improved CI setup and simulation pipelines using Python, C++, CMake, and Jenkins.
- Introduced AWS cloud services following 'infrastructure as code' (IaC) paradigm using Terraform.
- Automated character simulation routines using SOLID and DDD principles.
- Developed a Command Line Interface (CLI) driver to modernize and unify scattered rigging scripts.
- Implemented custom PID controllers for goal-reaching simulated virtual characters.

Stack: Python, C++, AWS, Terraform, Jenkins, Maya API.

Team Lead

Staples | Feb 2017 - Dec 2017 | Greater Vancouver

- Led a team of software engineers to redesign cart functionality, driving a revenue increase of \$9 million.
- Automated dev environment setup, streamlining the process.
- Integrated automated UI tests into the CI/CD pipeline.
- Contributed to the application architecture by encapsulating business functionality behind new APIs.
- Implemented SSO using IdentityServer for simplified and secure Azure AD integration.

Technical Lead, Solution Architect

Asia Fusion Technology Ltd | May 2013 - Jan 2017 | Vancouver, BC

- Provided Solution Architecture design, technical mentoring, and process leadership for a development team of 7-15 engineers.
- Architected and implemented a custom-tailored CMS solution.
- Leveraged DDD, onion architecture, and event sourcing/CQRS for scalable system design.
- Applied the SaaS model and utilized AWS hosting for scale.
- Established an Agile iterative development environment.
- Developed a domain-specific language (DSL) for a sportsbook rules engine.

Technical Lead, Application Architect

Plenty Of Fish / Offeron Media Corp | Oct 2011 - May 2013 | Greater Vancouver

- Managed system architecture, provided mentoring/hiring support, and enforced strict milestone management.
- Promoted agile methodologies (XP, pair programming).
- Implemented recursive MSSQL queries to navigate and analyze referral graphs.
- Re-engineered legacy Java applications.
- Automated building/testing routines (CI).

Development Lead / Architect

MagMe Media Inc. | Jun 2011 - Sep 2011 | Greater Vancouver

- Migrated the application into Azure Cloud and established CI processes (SVN, CruiseControl, MSBuild).
- Enforced code/design best practices via code reviews and pair-programming.
- Organized the knowledge base and streamlined requirement gathering.
- Created technical documents and UML diagrams describing key architecture concepts.

Senior .NET Developer / Architect

Zefr-Media Inc | Sep 2008 - Apr 2011 | N/A

- Designed and implemented a Domain Specific Language (DSL) for rules generation for an online casino betsliip validation.
- Implemented the rules engine on the server (C#) and client (JS).
- Applied IoC techniques (Unity) and functional programming concepts (higher order functions, closures, lambda expressions).

Senior .NET Developer

TEAM International | Nov 2008 - Nov 2009 | N/A

- Managed Continuous Integration (CI) practices, configuration management, and core system design for various client projects.
- Led the development of a web portal for managing short-term loan applications, leveraging ASP.NET MVC and jQuery for dynamic presentation, and ensuring scalability using Inversion of Control (IoC) containers for dependency management.
- Utilized MS SQL Server for robust data persistence.
- Drove successful project delivery, completing all functionality on time and within budget, which resulted in a contract extension for the client.

Senior .NET Developer

Zoral Labs | Oct 2007 - Nov 2008 | N/A

- Led refactoring, redesign, and application architecture efforts to improve system maintainability and performance.
- Successfully worked as a member of a senior .NET team using Scrum/Agile iterative development.
- Applied design patterns (like MVC and Factory) to introduce modularity during the refactoring process.
- Improved code quality and reduced technical debt by enforcing best practices through code reviews and pair programming.

Senior .NET / Python Developer

oDesk Freelancer | 2007 - 2008 | Remote

- Utilized Python and Amazon S3/EC2 cloud services for video processing techniques in an Agile environment.
- Implemented media processing pipelines using FFmpeg for video transcoding, format conversion, and watermarking.
- Gained hands-on experience with early cloud infrastructure and scripting.

.NET Developer / Architect

Alyuda Research | Jan 2004 - Oct 2006 | N/A

- Executed architectural design and implementation of a data-mining platform for banking scoring systems.
- Allowed users to train, compose, and run ML models using user-friendly desktop and web interfaces.
- Implemented data mining models including neural networks, logistic regression, and decision trees.
- Leveraged IBM SPSS Modeler (Clementine) to construct and verify end-to-end data processing and machine learning pipelines.

C++ Developer

Altron | 2003 - 2004 | N/A

- Supported and developed new functionalities for the MARS (Mobile Audio Registration System) project.
- System was integrated into mobile carriers' hardware/software stack for national security.
- Implemented automatic detection of control signals.
- Applied debugging and production delivery standards.