

# DOMINIC TROTTIER

Vancouver, BC

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## WORK EXPERIENCE

### Microsoft

May 2022 – Present

#### Software Engineer II

Vancouver, BC

- Migrated the **Azure Managed Identity** codebase consisting of over 150 projects from the legacy internal build system to **MSBuild**, which drastically improved the developer experience by unblocking the use of **Copilot** directly in Visual Studio and laid the groundwork for several other modernizations.
- Converted an existing single-use asynchronous worker service into a generalized background job framework capable of processing workloads whose execution times would exceed the maximum request timeouts imposed by **Azure Resource Manager**. By adding **Geneva** metrics, monitoring, and autoscaling, this framework was able to serve as a backbone for several other features which required long-running operations.
- Designed, implemented, and oversaw the rollout of a client-side data integrity verification feature which prevents an attacker with direct access to **CosmosDb** instances from being able to modify data undetected. This implementation was used as a reference implementation for several other teams implementing similar features.
- Played a significant role in the design and implementation of Managed Identity's tenant migration feature, requiring collaboration with multiple other teams to deliver on time and meet external customer commitments for several critical customers. By implementing a state-based asynchronous migration process, customers were able to migrate identities from all **Azure** regions using a single automated workflow.

### Avigilon

July 2020 – May 2022

#### Software Developer

Vancouver, BC

- Developed an external interface to allow users to provide text data to be overlaid on live video, requiring extensive additions to a device driver and **RTP/RTSP** media processing pipeline written in **C++**. As part of the development effort, existing code was modernized to improve readability and test coverage.
- Designed a **WPF** component which hosts a **React** video player with support for programmatic playback control and event notifications to allow external developers to integrate proprietary video streams in their applications.
- Created an **Azure** pipeline to run a custom Chromium build in **Docker** and automatically deploy it to a package repository for internal downstream consumers.
- Worked with a cross-functional team to design and implement an intuitive **WPF** UI in **C#** that allows users to subscribe to arbitrary ONVIF events published by third-party security cameras.

### SED Systems

May 2017 – July 2020

#### Intermediate Software Developer

Edmonton, AB

- Designed and implemented a robust, concurrent, and reusable architecture using **ReactiveX** interfaces to develop a tool for validating large-scale system behaviours across distributed sites written in **Kotlin**. By ensuring business logic was isolated from presentation logic, both a **JavaFX** GUI and a **gRPC** API could be exposed with minimal duplicated code.
- Played a key role in the design and development of a high-performance data-driven satellite monitoring and reporting system written in **Java** with a GUI written using **Swing** backed by a **PostgreSQL** database.
- Fixed multiple bugs in a **C++** codebase requiring extensive debugging to address deadlocks and memory safety issues.
- Optimized database access code resulting in a ~80% reduction in overall execution time by implementing a query batching system and profiling query execution to find database schema improvements.

## PROJECTS

### UntitledHelicopterGameTwo [🔗](#) | GDScript, Godot

- UntitledHelicopterGameTwo is a physics-based arcade flight simulator featuring predictive networked physics interactions and a scalable lobby-based server architecture.

### minver\_rs [🔗](#) | Rust, Git

- minver\_rs is an implementation of the MinVer automatic versioning protocol written in Rust, available as both a commandline utility and an automated build integration.

### SaltyBid [🔗](#) | C#, Unity

- SaltyBid is a 2D fighting game built on a dynamic, event-driven architecture that allows a wide range of complex interactions to be implemented in a straightforward way.