



# Paul W. Walter

PHD STUDENT · GEOSPATIAL DATA SCIENTIST · SENIOR SOFTWARE ENGINEER

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Paul W. Walter

## About My Research

My doctoral research develops a participant-driven dialogue framework for the conceptual modeling of spatial data—the foundational architecting phase of all design activities. This method enables non-professionals to synthesize machine-readable accessibility models by framing shared perspectives as inferred wayfinding maps. By encoding qualitative lived experience into formal computational structures—such as GIS shapefiles or CAD—the framework translates disparate dialects of accessibility across both format (narrative vs. machine logic) and theme (financial, logistical, and social realities).

## Publication Plan

I plan to publish that in three manuscripts:

- **Paper 1: Bridging Narrative and GIS via GeoSPARQL.** Defines a semantic method to structure oral histories into massively-scalable, machine-readable formats. This approach integrates existing spatial data with qualitatively rich narratives to query emotional and ephemeral patterns (e.g., perceived safety) with the same rigor as traditional GIS models. *Target: International Journal of Geographical Information Science (IJGIS).*
- **Paper 2: Intersubjective Modeling and Persona Triangulation.** Introduces a methodology to triangulate representative opinions found within oral histories through focus groups. This intermediate step facilitates the creation of perspective-based discussion groups using participant-defined personas, transforming individual tacit knowledge and subjective preferences into shared conceptual models for wayfinding. *Target: Operant Subjectivity: The International Journal of Q-Methodology.*
- **Paper 3: Collaborative Discourse Platforms for Urban Conflict.** Evaluates virtual “walk-alongs” and sketch-mapping using inferred wayfinding maps as props for facilitating conversations to resolving conflicting navigation needs. This work establishes a shared discourse platform for diverse stakeholders—which can include everyone from motorists and wheelchair users—in order to facilitate collaborative urban modeling from the ground up. *Target: Environment and Planning B: Urban Analytics and City Science.*

## Education

### University of Calgary

PH.D. STUDENT IN GEOGRAPHY

Calgary, AB, Canada

2023–Present

- GPA: 4.0; Supervised by Dr. Dan Jacobson.
- Researching scalable, personalized spatial disability data models and perspective-explicit qualitative data structuring.
- Recipient of Alberta Graduate Excellence Scholarship (\$11,000) and Eyes High Doctoral Scholarship (\$4,000).

### University of Calgary

MASTER OF GEOSPATIAL INFORMATION SYSTEMS (MGIS)

Calgary, AB, Canada

2021–2023

- GPA: 3.9; Developed a Computer Vision GeoAI project for sidewalk infrastructure segmentation.
- Architected the technical proof-of-concept for the VPR Catalyst Grant, securing a pathway to doctoral research.
- Four-time recipient of the International Graduate Tuition Award.

### Rochester Institute of Technology

MASTER OF SCIENCE IN INFORMATION TECHNOLOGY

Rochester, NY, USA

2006–2008

- Recipient of Triple-Award Graduate Assistantship: Programming, Database, and Multimedia.
- Teaching Assistant for Fundamentals of Data Modeling and Database Client/Server Connectivity.

## Teaching Experience

### University of Calgary

GRADUATE TEACHING ASSISTANT

*Calgary, AB, Canada*

2023 - Present

- Facilitates lab instruction, technical troubleshooting, and grading for senior-level Geography and GIS courses.
- Specializes in bridging the gap between geographic theory and technical implementation (Python/HPC).

Course Code & Name	Year	Instructor	Focus
GEOG 280: Intro Geospatial Tech	2023	Dr. Yackel	Fundamental spatial thinking and tech.
GEOG 351: Urban Social Geo	2024	Dr. Fast	Urban morphology and spatial evolution.
GEOG 567: Programming in GIS	2023	Dr. Bender	Python scripting and spatial automation.
GEOG 588: Urban GIS	2025	Dr. Shahid	Urban socio-spatial dynamics (Residential).
GEOG 588: Urban GIS	2024	Dr. Fast	Applied GIS modeling for sustainability.
GEOG 639: Spatial Statistics	2024	Dr. Bertazzon	Point patterns and autocorrelation (R/Arc).

### RIT Croatia — Zagreb Campus

ADJUNCT PROFESSOR / INSTRUCTOR OF RECORD

*Zagreb, Croatia*

2011 - 2013

- Delivered core IT and Software Engineering curricula to international students at the Zagreb technology hub.
- Mentored students in full-stack architecture and high-performance server-side logic.

Course Code & Name	Year	Term	Focus
4002-218: Java Programming II	2012	Winter	Intermediate OOP for IT systems.
4002-320: Internet Fundamentals	2011	Winter	Multimedia web development foundations.
4002-409: 3-Tier Web App Dev	2012	Annual	Full-stack design (Client/Server/DB).
4002-425: Human Computer Int.	2012	Spring	Cognition, factors, and interface design.
ISTE 120: Intro to Programming	2013	Fall	Algorithmic logic and problem-solving.
ISTE 260: Foundations of Design	2013	Fall	UX design and usability testing metrics.
ISTE 340: Client-Side Scripting	2013	Spring	Front-end architecture and JS patterns.
ISTE 341: Server-Side Programming	2013	Spring	Data persistence and server-side logic.
ITSE 190: Info Tech Foundations	2013	Spring	Modern info processing and systems.
SWEN 383: Software Design Princ.	2013	Spring	Architectural patterns (MVC, Singleton).

### RIT Croatia — Dubrovnik Campus

ADJUNCT PROFESSOR / INSTRUCTOR OF RECORD

*Dubrovnik, Croatia*

2012 - 2013

- Extended curriculum delivery to the Dubrovnik campus, specializing in multimedia and security foundations.

Course Code & Name	Year	Term	Focus
4002-218: Java Programming II	2012	Winter	Intermediate Java and object-oriented logic.
4002-320: Internet Fundamentals	2012	Winter	Intro to multimedia and web standards.
4002-409: 3-Tier Web App Dev	2012	Annual	Multi-tier architecture and database linking.
ISTE 340: Client-Side Scripting	2013	Spring	Client-side logic for interactive web apps.
Cyber Self Defense	2012	Winter	Digital forensics and network security basics.

## Research Contributions

### PUBLICATIONS & PRESENTATIONS

## From Movement Ecology to Urban Safety: A Computer Vision Pipeline for Vision Zero.

Calgary, AB

METHODOLOGICAL LEAD & PRESENTER

2026 (Upcoming)

- Presenting the architecture of a custom Computer Vision (CV) pipeline designed to identify measurable danger for pedestrians in support of **Vision Zero** ([visionzeronet.org](http://visionzeronet.org); a global strategy to eliminate traffic fatalities).
- Built a spatial data infrastructure (SDI) that integrates video footage and mobile devices into team-oriented public safety surveys by adapting animal movement ecology algorithms to analyze trajectory-based near-misses.

## Disability Cultural Heritage as Rosetta Stone: Integrating Lived Experience into Spatial Data.

San Francisco, USA

PRIMARY AUTHOR & PRESENTER

2026 (Upcoming)

- Abstract accepted for the **AAG Annual Meeting** ([aag.org](http://aag.org)). Presenting a multi-perspective modeling framework that structures oral histories from the Independent Living Movement into machine-readable data.
- Resolves the clash between physical compliance and social inclusion within spatial data infrastructures.

## Disability Cultural Heritage as Rosetta Stone: Integrating Lived Experience into Spatial Data.

Calgary, AB

PRIMARY AUTHOR & PRESENTER

2026 (Upcoming)

- Abstract accepted for the **CAG Annual Meeting** ([cag-acg.ca](http://cag-acg.ca)). Introducing a methodological framework to redefine accessibility at the **micromobility** scale (wheelchairs, e-scooters).
- Demonstrated how structuring qualitative disability history allows for side-by-side subjective viewpoints in GIS.

## Spatial Data Insights in Urban Accessibility: NAICS Classifications & Accessibility.

SDSS (Remote)

TECHNICAL LEAD FOR THE CALGARY TEAM

2024

- Engineered the core computational pipeline and ML libraries for the University of Calgary team who presented at **SDSS** ([amstat.org](http://amstat.org)).
- Formulated technical workflows to analyze accessibility across global industrial sectors using **NAICS** (North American Industry Classification System: [statcan.gc.ca](http://statcan.gc.ca)). Produced the presentation materials. Co-presenters: V. Fast, S. Deitz, A. Psyllidis, V. Milias, B. Walker.

## In the Fullness of Time: A Retrospective of the MOCA Project. [Presentation Award]

CAG Conference

TECHNICAL LEAD & PRESENTER

2024

- Evaluated a national **VGI** (Volunteered Geographic Information—crowdsourced spatial data) initiative, the **MOCA Project**, employing 37 researchers across 20 regions.
- Introduced frameworks for understanding how inspector bias affects data dimensionality and how it can be normalized via logistic regression.

## Using a Narrative-Based Approach as a Safeguard Against Bias-Related Harm.

SDSS Symposium

PRIMARY AUTHOR & PRESENTER

2023

- Presented co-authored paper (Dr. Fast) research regarding the integration of qualitative narratives into algorithmic fairness frameworks. [DOI: [10.25436/E2C308](https://doi.org/10.25436/E2C308)]

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## GRANT DEVELOPMENT (NON-REFEREED CONTRIBUTIONS)

### Calgary Foundation: Community Grant (\$75,000; Committee Head: Diane Hall). [Awarded]

Calgary, AB

GRANT AUTHOR

2025 – 2026

- Secured a **\$75,000.00** one-time grant for the **Ability Workshop Society (AWS)** to implement critical cost-mitigation and operational upgrades.
- The organization custom builds and delivers assistive devices at no cost to clients with unique mobility needs.
- Authored the successful proposal for the "Rent, Materials, Mileage, and Upgrades" initiative, designed to sustain the production of 130 custom-built physical aids annually for the 40+ volunteer org.
- Acted as the primary organizational contact and steward for the grant agreement, managing reporting requirements and coordinating with Foundation leadership.

### **Parex Innovation Fellowship (\$20,000; PI: Dr. Victoria Fast). [Awarded]**

Calgary, AB

METHODOLOGICAL CONTRIBUTOR & TECHNICAL LEAD

2025

- Architected methods to enhance the \$800k in-kind [AccessNow](#) dataset. Developed an AI-driven NAICS classification system to link accessibility metrics with standardized business categories to more deeply understand accessibility trends per industry.
- Wrote computational materials so the three grad students brought on by the SSHRC grant could get up to speed and participate (Jupyter Notebooks and Primers).

### **SSHRC Insight Grant (~\$250,000; PI: Dr. Victoria Fast). [Awarded]**

Calgary, AB

**NAMED CONTRIBUTOR** & TECHNICAL LEAD

2024

- Served as a named contributor for the **successful resubmission** of this federal application ([sshrc-crsh.gc.ca](#)); re-designed the technical methodology and software workflows for **HPC** (High-Performance Computing) environments.
- Established the qualitative-to-quantitative researcher-to-software protocols and technical rigor required to address previous adjudicator feedback.
- Established computational protocols for working with the [Digital Research Alliance of Canada](#) HPC clusters and served as System Administrator for the project nodes.
- Developed a smartphone application that links to a desktop GIS for syncing interviews with spatial data.
- Connected our research team to international technical collaborators Delft University of Technology (TU Delft) whose additional computational capabilities helped secure the award.
- **Note:** See [Technical Appendix Item A1 \(p. 8\)](#) for system diagrams 

### **Advancing Accessibility Standards Research Program (~\$274,800; PI: Dr. Victoria Fast). [Awarded]**

Calgary, AB

METHODOLOGICAL CONTRIBUTOR & TECHNICAL LEAD

2023

- Designed participatory methodological frameworks and technical strategies for operationalizing community narratives into a Spatial Data Infrastructure (SDI).
- Connected our research team to international technical collaborators **Delft University of Technology (TU Delft)** whose additional computational capabilities helped secure the award.

### **Quantum City Mandate Application: “Quantum-Ready Urban Analytics” (~\$1,000,000). [Unfunded]**

Calgary, AB

TECHNICAL CONTRIBUTOR & PROPOSAL ARCHITECT

2022

- Collaborated on a major strategic bid to integrate hybrid quantum-classical machine learning into municipal infrastructure optimization.
- Proposed a novel computational framework using **Quantum Tensor Networks** to solve high-impedance routing problems for complex multi-modal accessibility networks that exceed the capacity of classical linear solvers.
- Architected the technical roadmap for scaling accessibility models to “Quantum-Ready” status, bridging the gap between theoretical quantum advantage and applied urban geography.

### **VPR Catalyst Grant: “Automating Data Collection of Disabling Barriers” (~\$15,000; PI: Dr. Victoria Fast). [Awarded]**

Calgary, AB

METHODOLOGICAL CONTRIBUTOR & TECHNICAL LEAD

2022

- Authored the technical methodology and prototyped open-source solutions ([PDAL](#), [Entwine](#)) for massive **LIDAR** (Light Detection and Ranging) visualization.
- The success of this pilot and the resulting Spatial Data Infrastructure (SDI) led to a direct **departmental nomination for a funded Ph.D. position.**
- Established the empirical foundation and technical workflows that underpinned a trajectory of approximately \$500,000 in subsequent successful federal funding applications.

## **Service**

### ACADEMIC & INSTITUTIONAL SERVICE

#### **Geography Graduate Students’ Association (GeoGSA)**

Calgary, Canada

VP OF STUDENT LIFE & EDI GRADUATE REPRESENTATIVE

2021 - Present

- Serving as VP of Student Life (2024–Present) to enhance graduate student experience and community.
- Served 3 years as Equity, Diversity, and Inclusion (EDI) Representative, contributing to institutional dialogue on systemic exclusion.
- Collaborate computationally with international researchers to bridge academic silos and share technical expertise.

- Engaging with local initiatives supporting UN sustainable development goals within the Calgary community.

**VOLUNTEER POSITIONS**

**Ability Workshop Society**

- Apply craftsmanship and engineering skills to create custom equipment for the disability community, including refurbishing a braille press and oxygen line setup.
- Developed an annotated 3D photogrammetry model to facilitate knowledge mobilization and accessibility awareness.

**Local Non-Profit (Caskets and Equity)**

- Supported a community reintegration program for formerly homeless individuals through technical mentorship and social support.
- Established the ceramics department for urn production and performed maintenance welding for shop equipment.
- Provided a consistent social presence to help participants rebuild networks outside of previous cycles of homelessness.

**Professional Development & Certifications**

A record of formal certifications and technical evaluations. Each credential was strategically pursued to architect the computational workflows for the [SSHRC Insight Grant](#) and [VPR Catalyst Grant](#), bridging High-Performance Computing (HPC) with qualitative human geography.

Year	Type	Official Title, Outcomes & Strategic Research Application
2024	Course	<p><b>Course: “ML with Natural Language Processing (NLP) and LLMs”</b>  <i>Outcomes:</i> Proficiency in Transformer architectures and NER for unstructured text.  <b>Applied to:</b> Automating NAICS classification for the <a href="#">SSHRC Insight Grant</a>.</p>
2024	Course	<p><b>Course: “Full Stack Machine Learning (MLOps)”</b>  <i>Outcomes:</i> Mastery of the full ML lifecycle: data versioning and model deployment.  <b>Applied to:</b> Developed privacy-preserving offline RAG chatbots for <a href="#">AccessNow</a>.</p>
2022–24	LiDAR	<p><b>Certification: “Point Cloud Intelligence” — 3D Geodata Academy (Inst. Florent Poux, PhD)</b>  <i>Outcomes:</i> Mastery of the “3D Operating System” track for automated feature extraction and 3D deep learning (81% complete).  <b>Applied to:</b> Implementing semantic segmentation to detect micro-barriers in pedestrian infrastructure for <b>PhD field research</b>.</p>
2022	LiDAR	<p><b>Certification: “ESRI 3D Analyst: LiDAR Classification and Feature Extraction”</b>  <i>Outcomes:</i> Classification of LAS files and 3D footprint extraction.  <b>Applied to:</b> Technical proof-of-concept which secured the <a href="#">VPR Catalyst Grant</a>.</p> <p><b>Course: “Potree, Entwine, and PDAL Point Cloud Architecture”</b>  <i>Outcomes:</i> Scalable indexing and web-based visualization of millions of points.  <b>Applied to:</b> Interactive 3D modeling for the <a href="#">Advancing Accessibility Standards</a> project.</p>
2022	Cloud	<p><b>Course: “Hashicorp Packer and Linux Admin” for Digital Alliance of Canada</b></p>

Continued from previous page

Year	Type	Official Title, Outcomes & Strategic Research Application
		<p><b>Outcomes:</b> Automated creation of GPU-enabled VM images via Infrastructure-as-Code (IaC).</p> <p><b>Applied to:</b> Deployed repeatable ML environments for the <b>Vision Zero</b> conflict project.</p> <p><b>Course: “Open Sidewalks Implementation and SidewalkKreator”</b></p> <p><b>Outcomes:</b> Mastery of OSM relational schemas and routable PostGIS networks.</p> <p><b>Applied to:</b> Reverse-engineered Calgary-wide accessibility barrier network models.</p>
2022	Edge	<p><b>Course: “Google TensorFlow Quantum and Microsoft Quantum Fundamentals”</b></p> <p><b>Outcomes:</b> Understanding of Qubits and hybrid Quantum-Classical machine learning models.</p> <p><b>Applied to:</b> Proposed novel computational approaches for the <b>Quantum City Mandate</b> application.</p>
2021	ESRI	<p><b>Certification: “ESRI Network Analysis (Optimized Routing, Service Areas)”</b></p> <p><b>Outcomes:</b> Design of multi-modal transportation networks and impedance modeling.</p> <p><b>Applied to:</b> Foundation for the <b>MGIS research</b> on city-wide sidewalk connectivity.</p>

## Professional Experience

### NDA: Internal GIS Automation

Calgary, AB, Canada

SENIOR GEOSPATIAL ENGINEER

2023 - Present

- Architected a high-performance spatial backend using **Golang and PostgreSQL**; engineered a responsive GIS frontend with **Vue.js and OpenLayers** for large-scale data visualization.
- Streamlined internal geospatial workflows by automating complex spatial queries and data processing pipelines.

### NDA: Intellectual Property Advisory

Calgary, AB, Canada

MACHINE LEARNING ENGINEER & LEGAL/IP ADVISORY

2022 - 2023

- Managed technical and legal/IP risk for a **\$400,000 Machine Learning contract**; acted as the lead technical liaison for contractor data requests to safeguard proprietary datasets.
- Established rigorous data governance protocols to ensure Intellectual Property protection throughout the ML training and deployment lifecycle.

### Martinson Golly (Forestry & Wood Identification)

Calgary, AB, Canada

COMPUTER VISION PIPELINE ARCHITECT

2022

- Designed and built an end-to-end **Computer Vision (CV) pipeline** for automated wood species identification, including a custom lighting and camera rig for high-fidelity data acquisition.
- Developed automated image processing workflows to extract diagnostic features from macro-scale wood samples, bridging the gap between manual microscopic analysis and scalable AI.

### Medisked (Healthcare / Medicaid / Medicare)

Rochester, NY / Remote

SENIOR ENGINEER III

2020 - 2022

- Modernized critical legacy healthcare infrastructure using **Domain-Driven Design (DDD)** and an **API-first architecture** to handle high-compliance federal data.
- Optimized system interoperability and performance for high-traffic platforms serving the Medicaid and Medicare sectors.

### **Green Line (IoT / Urban Agriculture)**

*Global / Remote*

SENIOR ENGINEER (GIS & IOT)

*2019 - 2020*

- Developed GIS software for the management of closed-loop biomes (aquaponics); integrated real-time IoT sensor telemetry to automate environmental monitoring.
- Engineered a map-based logistics system to generate optimized service schedules for field technicians based on spatial sensor data.

### **Functional Fox (Industrial Foundry Coordination)**

*Peru / Brazil*

SENIOR ENGINEER & LOGISTICS COORDINATOR

*2019*

- Orchestrated industrial foundry logistics in South America to produce metal copies of **3D-printed/CNC models**.
- Strategized the intersection of traditional metal casting and rapid prototyping to streamline the production of custom industrial components.

### **Records One (Medical Transcription)**

*USA / Remote*

SOFTWARE ENGINEER (NLP & HEALTHCARE)

*2015 - 2019*

- Architected event-driven medical transcription applications; integrated **Natural Language Processing (NLP)** pipelines using the cTakes library for clinical text analysis.

### **NDA: IoT / Instrumentation / Agriculture**

*Remote*

SOFTWARE ENGINEER (IOT PROTOTYPE)

*2011*

- Developed a functional prototype for a **GIS-enabled sensor monitoring system** featuring real-time telemetry and camera integrations for agricultural monitoring.

### **Cynergy Systems (now KPMG)**

*Rochester, N.Y.*

SOFTWARE ENGINEER

*2008 - 2011*

- Accounting Application Developer for the US Department of Defense and US the Air Force.

# Technical Appendix

## A1. PROJECT ARCHITECTURE: SSHRC INSIGHT GRANT *Distributed Infrastructure & Operational Workflows*

The following architectures and operational workflows were **originally developed as part of my graduate thesis** and later served as the basis for the SSHRC Insight Grant (awarded; approx \$250,000). These diagrams illustrate an integrated system viewed through two lenses: its person to computational view and its person to person (use-case) view. The pipeline produces a knowledge graph to bridge qualitative human narratives with traditional spatial data.

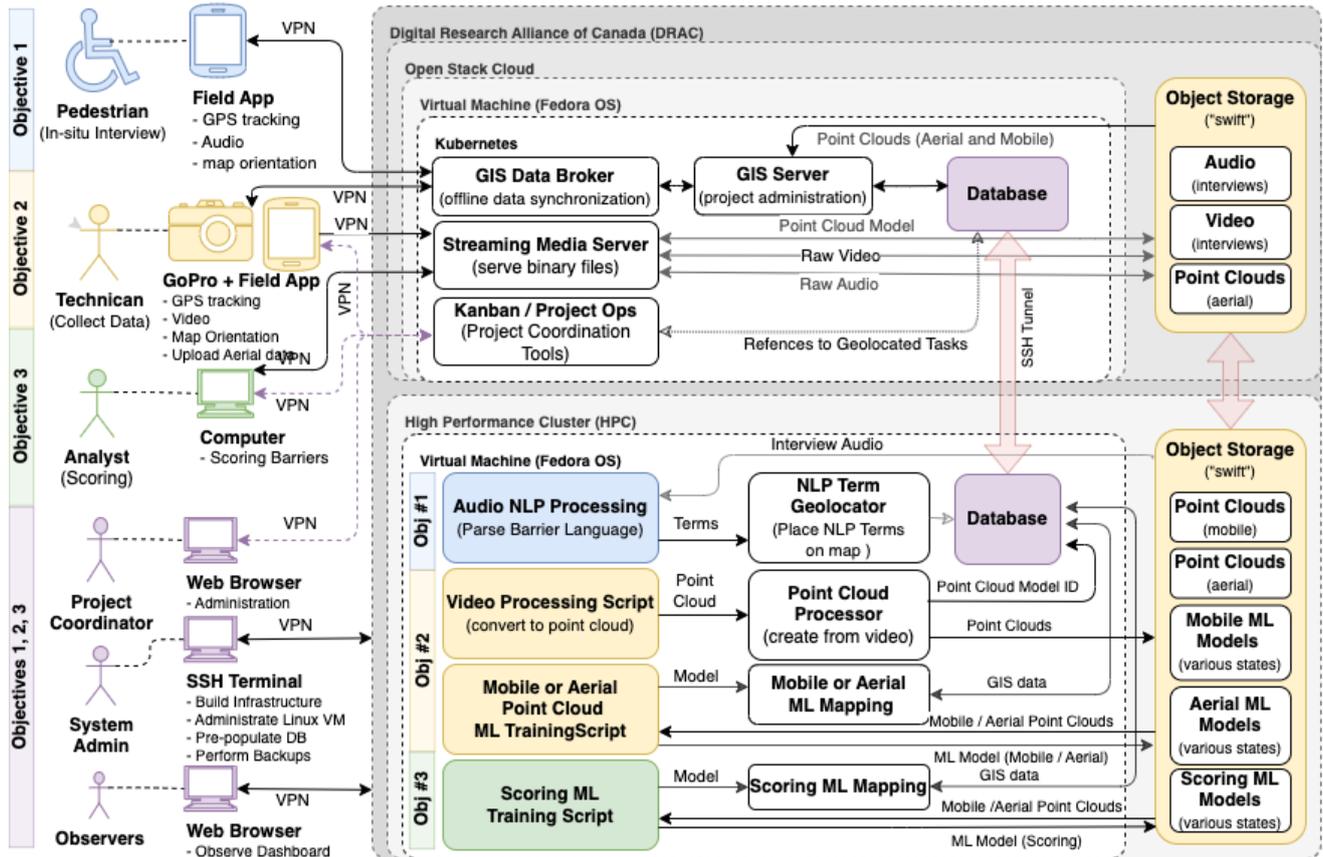


Diagram 1: Multi-Environment (HPC & Cloud) Distributed Infrastructure (System View)

### PERSON TO SYSTEM PROTOCOL

- **Obj 1 (Understand) | Role: Interviewer via Field App:** Captures in-situ narrative; syncing interview data (GPX, Key Photos, Audio) to the cloud initiates high-memory HPC audio ingestion. The system executes NLP parsing to geolocate barrier "signatures" within a GIS Database.
- **Obj 2 (Map) | Role: Technician via GoPro Camera:** Revisits locale to document geometry, minimizing participant fatigue. Raw video ingestion into the HPC pipeline triggers Structure from Motion (SfM) reconstruction and unsupervised ML segmentation to identify physical barriers at +/- 1cm-resolution.
- **Obj 3 (Score) | Role: Analyst via Web Dashboard:** Initiates ML training scripts on GPU-intensive nodes to automate feature detection across city-wide datasets. The system generates aggregate scoring models to produce persona-specific navigability maps for comparative accessibility analysis.
- **Stewardship | Role: System Admin via SSH Terminal:** Provisions Linux VMs and encrypted tunnels via "Infrastructure as Code." Bridges administrative and computational domains for persistent storage and coordinates with the Project Manager to pre-load Field App data.

# INTERVIEW PROTOCOL

- Admin:** Before the interviews, the Admin uses Terraform to contact the **DRAC** cloud and provision OpenStack resources. Deploys as "Infrastructure as Code" (Hashicorp Packer/Terraform) for **Linux VMs** and **Kubernetes** to ensure a sovereign environment. Interacts with the **Coordinator** to signal readiness.
- Cartographer (Initiates GIS):** The day before an interview, the Cartographer loads **City of Calgary** base layers and GCS data into the **PostGIS** Master Database. Then exports the segment needed to conduct the interview via **Field App** with internal interview forms and commits project packages to **Git Version Control** for field iPad deployment.
- Interviewer (Initiates Narrative):** Coordinated by the Project Manager, the Interview team meets the **Pedestrian**, if consent is given, conducts a "walk-along" interview. Data to capture the mental model of "Pain Points" via the Field App, which is pushed through a **GIS Data Broker** to create a geolocated subjective record.
- Technician (Initiates Documentation):** After the interview, the **Technician** (perhaps one of the interviewers) revisits routes with a **GoPro 7** and **GCP** checkerboards to produce cm level photogrammetry models. Interacts with the **Admin** to synchronize raw media to the **Streaming Server**, ensuring data is ready for structure from motion extraction.
- Engineer & Analyst (Initiates Results):** The **Engineer** executes the HPC pipeline (Speech-to-Text, NLP, SfM). The **Analyst** interacts with the **Pedestrian** in-situ to verify barrier signatures, tweaking **ML segmentation** for final persona-specific scoring.

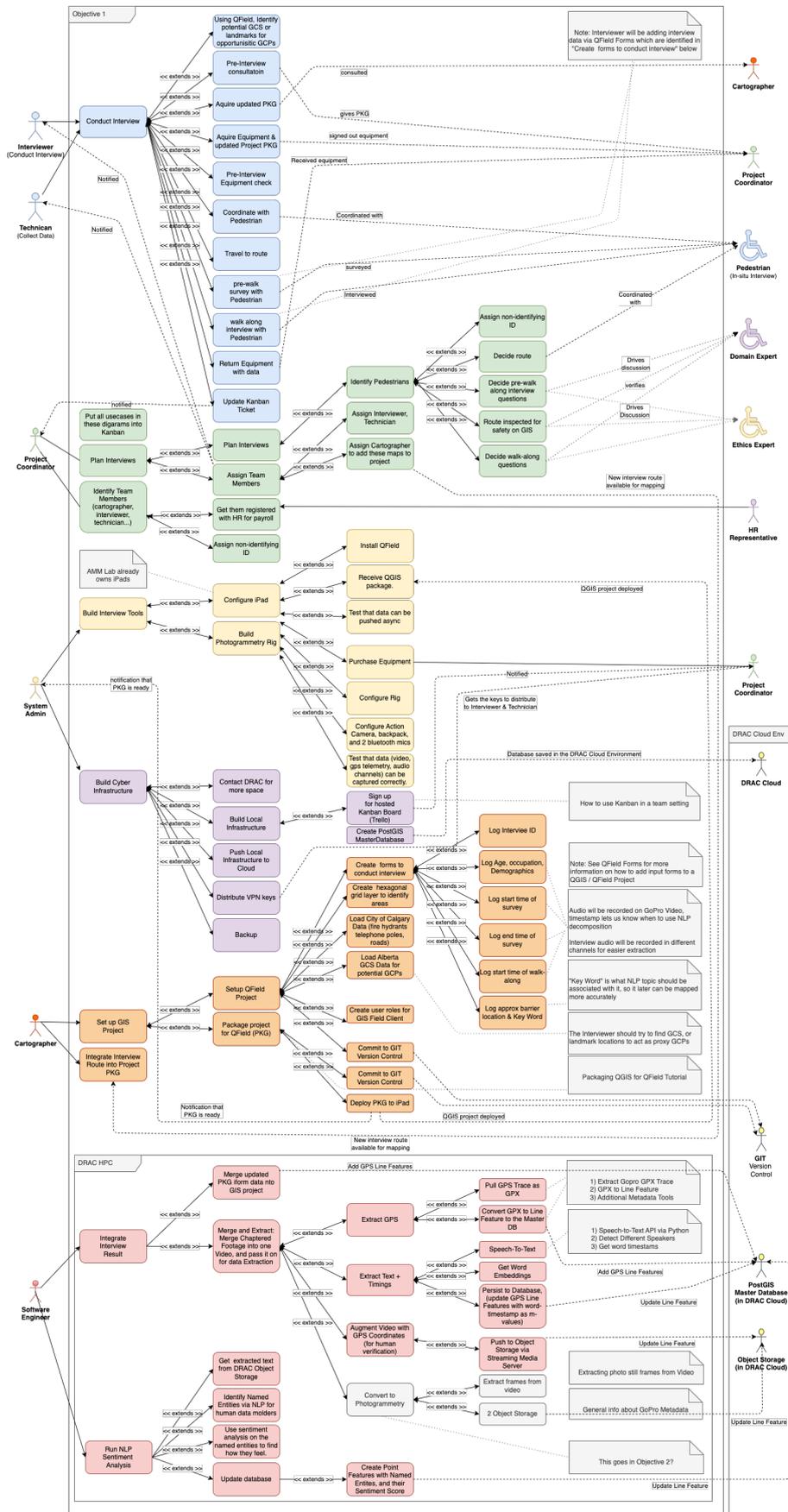


Diagram 2: System Use Case Architecture (Person to Person Interactions)



**Diagram 3: The view to my old apartment in Dubrovnik, Croatia**

From 2011 to 2013, I served as a core member of the Information Technology faculty across the Zagreb and Dubrovnik campuses. My role extended beyond standard instruction to include the **design and standardization of course materials** and lab protocols to align with RIT New York’s rigorous accreditation standards. I was responsible for delivering a diverse technical curriculum, bridging the gap between foundational computational logic and high-level software engineering. My work focused on fostering a “developer-first” mindset, mentoring students in full-stack architecture, and implementing active-learning strategies in high-enrollment lab environments.

*\*Click any Course Code to return to the Teaching Experience summary section.*

**Software Engineering**

**SWEN 383: Software Design Principles.** Focused on the transition from coding to architecture. Instructed on Gang of Four patterns (Singleton, Observer, Strategy) and evaluated student architectures based on SOLID and GRASP principles.

**Web & Full-Stack**

**ISTE 341: Server-Side Programming.** Implementation of data persistence logic using Java Servlets, JSP, and JDBC for relational database connectivity (MySQL).

**ISTE 340: Client-Side Scripting.** Advanced front-end architecture, asynchronous patterns (AJAX/JSON), and DOM manipulation using vanilla JavaScript and jQuery.

**4002-409: 3-Tier Web App Dev.** A capstone-style course managing the integration of Client, Server, and Relational Database layers within a unified system.

**Computational Logic**

**ISTE 120 / 4002-218: Intro & Intermediate Programming.** Foundational object-oriented logic in Java. Emphasized data structures, inheritance, polymorphism, and algorithmic efficiency.

**ITSE 190: Info Tech Foundations.** Comprehensive survey of modern information systems, networking protocols, and enterprise data processing models.

**User-Centered Design**

**ISTE 260: Foundations of Design.** Psychology of the user. Taught heuristic evaluation, persona development, and GOMS modeling to predict user interaction speed.

**4002-425: Human Computer Interaction.** Focus on cognitive load and the design of accessible digital interfaces for diverse user groups.

**Specialized Topics**

**Cyber Self Defense.** Delivered at the Dubrovnik campus; focused on the "Human Element" of security, including social engineering, basic cryptography, and network hygiene.