VIRTUAL GWICH´IN
Vision

The vision of Virtual Gwich’in is to create;
An Indigenous Centre of Excellence that joins
Gwich’in knowledge with cutting-edge technologies to
support local and global educational opportunities.
These tools will provide a platform for youth to
collaborate with knowledge holders, Elders and Ancestors
virtually and on the Land to ensure that the language and
deep knowledge of the Gwich’in contributes to innovation
and adaptation for healthy futures in the north.

Who we are

Virtual Gwich’in is a non-profit organization by and for
Dinjii Zhuh, who are Dene-speaking (Athabaskan)
Indigenous peoples living in northwestern America. Dinjii
Zhuh culture is deeply connected to the land and its
resources. The traditional homelands of the Dinjii Zhuh
span a vast territory, reaching from the caribou birthing
grounds in what is today known as Alaska and following
their migration route across the Yukon Territories and
Northwest Territories in Canada. Hunting, trapping and
fishing remain significant elements of Dinjii Zhuh
economy and way of life.
ALICE VITTREKWA
DIRECTOR
Alice Vittrekwa is a Teetl’it Gwich’in who lives in Fort McPherson, NT. She worked as a Cook, Alcohol Councilor, Life Skills Trainer, part time Teaching Sub, and Local Justice of the Peace. Fluent in both Gwich’in and English, and raised on the land with her parents, who taught her the Gwich’in Indigenous Knowledge. Today she teaches, at her camp and other on the land facilities, the Gwich’in way of life, working with what’s harvested from the land as it has been for thousands of years.

ERNEST VITTREKWA
DIRECTOR
Teetl’it Gwich’in from Fort McPherson, NT, who was raised on the land, and continues to trap, hunt, and fish, and is fluent in his Gwich’in Language. As a respected elder he continues to teach the Gwich’in way of life on the land and at his camp, for local schools, and groups requiring his experience and expertise. He continues to guide on the land trips, as he teaches from the indigenous knowledge he has.

JAMES ROSS
Founder & CEO
With over four decades experience working with First Nations, Governments and Industry, Mr. Ross has been involved in leading Northern Canada’s resource and governance projects since his early 20s. A four-term Chief of the Teetl’it Gwich’in Nation, Mr. Ross played a key role in creating economic and cultural opportunities, while remaining dedicated to his Gwich’in culture, his family, community and lands, throughout the Gwich’in Home Lands.

ELEANOR MITCHELL-FIRTH
DIRECTOR
Eleanor Mitchell-Firth is a member of the Teetl’it Gwich’in. As a youth, she lived a traditional lifestyle on the land with her family. She and her siblings were taught the Teetl’it Gwich’in language. She is skilled in financial matters, staffing, program management as well as developing and implementing various language programs and language material development. Today she lives in Fort McPherson and works full time as a Sole Proprietor through her bookkeeping and language consulting business, E. Firth Business Services.
KAREN MITCHELL  
DIRECTOR  
Known by her Gwich'in name as Gwich'uu, Some accomplishments are: Cultural Liaison for indigenous wellness program, providing services in Teetl'it Gwich'in. Previous CBC (radio announcer), Resolution/Health/Support and Language instructor. She continues translation/interpreting.
She enjoys life on the land, as she works with preservation of her first (Teetl'it Gwich'in) language with anyone who’s willing to learn and preserve.

MICHAEL ROBINSON  
DIRECTOR  
Mike Robinson served as executive director/CEO of three important Canadian NGOs, the Arctic Institute of North America at the University of Calgary, the Glenbow Alberta Institute, and the Bill Reid Gallery of Northwest Coast Art. He attended the University of British Columbia and University College, Oxford, as a Rhodes Scholar. He has degrees in Anthropology and Law. In 2005 he became a Member of the Order of Canada.

BETTY VITTREKWA-FIRTH  
DIRECTOR  
Betty Vittrekwa-Firth is a Teetl'it Gwich'in of Fort McPherson, NT, married to Norman Firth. Betty is an Clerk/receptionist at the local Health care center and was an Administrator at the Chief Julius School and a Material Developer for the Gwich'in Social and Cultural Institute for many years. She was also a committee member of the Teaching and Learning Centre, with the Language Commissioner's Office. Betty was raised on the land, and taught the Gwich'in Indigenous Knowledge.

KAREN MITCHELL  
DIRECTOR  
Known by her Gwich'in name as Gwich'uu, Some accomplishments are: Cultural Liaison for indigenous wellness program, providing services in Teetl'it Gwich'in. Previous CBC (radio announcer), Resolution/Health/Support and Language instructor. She continues translation/interpreting.

She enjoys life on the land, as she works with preservation of her first (Teetl'it Gwich'in) language with anyone who’s willing to learn and preserve.
When we speak of our future, the people who are going to be part of that future, our youth, our children, are here with us today, they are our future. If we do our job right now, these future elders will be making their speeches, to their children and youth, while looking at us among the stars, as we become the new ancestors.

James Ross
Founder & CEO Virtual Gwich'ìn

Rhianna Firth Teetl’it Gwich’in

Rhianna Firth Teetl’it Gwich’in is a member of Teetl’it Gwich’in, from Fort McPherson, NT, currently a student with Northern Alberta Institute of Technology. She enjoys sewing, baking, traveling, and spending time with family. Her dream is one day she will run a business, owned by her, as she continues to further her education.

Olivia Dobbs Teetl’it Gwich’in

What I love most about working here (Yukon First Nation Education Directorate) is that I get to help young people find what they love to do, by engaging with them and seeing how much they enjoy the activities and options we have created for them. I really believe that for our youth to succeed, we have to be there for them, hold them up when they succeed, stand beside them when they make mistakes. We shouldn’t be pushing them aside when they don’t understand something. We should be pushing them positively towards a better future and giving them the power to decide that path on their own – this is exactly what we try to do at the Directorate.

Brennan Firth Teetl’it Gwich’in

Brennan Firth Teetl’it Gwich’in is Teetl’it Gwich’in currently living at Arctic Village, Alaska where he is the local power plant operator assistant, and local school maintenance. He enjoys going out on the land, harvesting, hunting, fishing, and hauling wood. Brennan was fortunate to be taught, and now is one of our knowledge holders, learned and practicing respect for our Gwich’in way of life, with traditional knowledge. He is a skilled musician, awesome fiddler, and a great mechanic.
JORDAN STEWART TEETL’IT GWICH’IN

Jordan Stewart is Teetl’it Gwich’in and was taught by his late dad Abraham Stewart, and now enjoys hunting, trapping, and fishing, practicing his ancestors ways of living on the land. He graduated high school, and is now looking forward to joining the Canadian Armed Forces. Gwich’in Indigenous Knowledge is what he enjoys learning, as he travels our lands, and now is one of our youngest knowledge holders.

JEWELS GILBERT NEETS’AII GWICH’IN

Jewels Gilbert Neets’ai Gwich’in is a member of the Neets’aii Gwich’in, currently working with Arctic Village Tribal Council Wellness program, while studying with University of Alaska Fairbanks, Majoring in Education. Understands Gwich’in, and works to speak the language, which she learned from grandparents, who raised her with traditional lifestyle teachings. Enjoys hunting, fishing, and harvesting food from the land, which she learned to respect, and strives to maintain, for future generations. She is skilled in sewing and believes we have a strong future to work towards.

ALICE FROST VUNTUT GWICH’IN

My name is Alice Frost and I come from a long line of strong Gwitchin women. I was fortunate to learn our traditions and ways of being from my mother Pauline Frost growing up. I have always connected strongly with the land and my culture. I am a licensed practical nurse and am currently getting my degree in health sciences. I have always had a passion for improving the systemic barriers placed upon our people. I think that is why I went into health care for a career. There are so many factors that contribute to the health of individuals and populations and there is room for improvement in all of them. I love our people and want to create a better future for our children wherever possible.

JORDAN STEWART TEETL’IT GWICH’IN
Raymond Yakeleya is an award winning Dene television Producer, Director and Writer. Raymond is originally from Tulita (formally Fort Norman) in the central Northwest Territories and he now calls Edmonton home. Raymond has over 40 year experience in the film + the television industry.

Princess Daazhraii Johnson (Neet’saii Gwich’in) is a writer/director/producer/actor and is committed to building more narrative sovereignty for other Alaska Native filmmakers. She is a Sundance Film Alum, and the Creative Producer and a Screenwriter for the Peabody award-winning PBS Kids series “Molly of Denali.”

Amos Scott is a Tlicho Dene filmmaker, photographer and student. He’s been researching the early days of the Dene Nation and loves to get out in the bush to learn from his ancestors.

Allan Code is a Gemini Award winning filmmaker and producer of wildlife, social, historical and cultural documentary in Northern Canada for Canadian and global audiences for nearly four decades.

Davis Heslep is a multiracial Arts Administrator, Educator, Media Artist and XR Producer from Yellowknife, NT. Davis also created the Hack-space NT program which toured the 5 regions of the NWT for 6 years.

From 2021 to the present Virtual Gwich’in has been reaching out to media professionals from the public and private sectors to identify fundamental issues and solutions to digital skill development in the Gwich’in Territory. Our Team have assisted in developing a grant calendar, vetting proposals, and identifying national and international partnership opportunities.
Virtual Gwich’in’s mission is to introduce new technology to the Gwich’in and their supporters, both within and beyond the Gwich’in homelands. The overarching goal of these efforts is to share new flexible technologies to improve education opportunities for all Gwich’in.

"At one time, the land and everything on it ... the birds, the fish, the animals, the plants, the stars, and our ancestors, the Dinjii Zhuh (the Gwich’in) were all part of one world. In this way the Dinjii Zhuh for many, many centuries lived on the land with the seasons. Sometimes life was good and sometimes it was very difficult. Over the centuries, our ancestors crafted their shelters, tools, and made their medicines. They learned the ways of the birds, the fish, the animals, and the weather to survive. Over time our ancestral mothers, fathers, grandmothers, and grandfathers passed this knowledge and their stories to their sons and daughters so they too could use it and pass it on to us."
WHAT WE DO
WHAT IS VIRTUAL GWICH'IN?

Virtual Gwich'in's mission is to introduce new technology to the Gwich'in and their supporters, both within and beyond the Gwich'in homelands. The overarching goal of these efforts is to share new flexible technologies to improve education opportunities for all Gwich'in.

Our vision is to create an Indigenous Centre of Excellence to provide global educational opportunities, with a particular focus on the people residing in the Arctic. Above all, Virtual Gwich'in will strive to improve Arctic living conditions.

We will create immersive educational and story-telling tool with interactive 360 AR/VR content created to share our Gwich'in Indigenous Knowledge locally and globally in a semi-permanent Immersive Environment.
LONG-TERM OBJECTIVES

1. To reach out to Indigenous communities across the world to show other communities what is possible technologically to share stories, share Indigenous Knowledge with others, and eventually empower other communities to do the same worldwide.

2. To work with organizations like yours, as an Indigenous collaborator, for networking with other Indigenous communities across the world.
VIRTUAL GWICH’IN PROJECT

✓ In the winter of 2022, Arctic Indigenous Innovations Inc. (Our parent non-profit organization dedicated to off-grid arctic living solutions) worked with the Ontario based VR company, Immersive link, to create an Interactive Virtual Reality Tour mapping out Traditional Knowledge Areas to preserve cultural practices and language. The educational tool will serve as a 3D map of Teet’l Gwich’in Territory with interactive capabilities, viewed in the Oculus Quest 2 which includes captured 360 video at sacred areas throughout the Gwich’in territory.

✓ These sacred and traditional areas were captured in 360 video in their present state. Including a hosts on screen elements/areas that will act as a guide and connection for others taking the virtual experience. The teachings provided for each area will be created into a story that can be further illustrated elements with the use of digital art, and other forms of digital animation to bring the experience “to life”.

Photos taken from the production of Virtual Gwich’in with Immersive link.

ON THE LAND - DOCUMENTARY

During the winter of 2022. Filmmaker Allen Code worked with James Ross and a number of local elders and land users, to collect footage of the traditional trails of the Teet’l Gwich’in. Interviews were also conducted and will be woven together with the footage to produce a mini documentary about the importance of land and cultural preservation.

Photos taken from the production of the documentary On the Land with filmmaker Alan Code.
This spectacular landscape and story lend themselves perfectly to 360 harvesting only what they need. The Porcupine herd thus remains one of to the Northwest Territories is the story of the Gwich'in people. For 30,000 The story of the Porcupine Caribou herd’s annual migration from Alaska and the Arctic in all its splendor and variations throughout the seasons. — by telling the story in the Gwich’in language, along with — by telling the story in the Gwich’in language, along with Language 2. Develop projects and programing that creates positive inter-generational feed-back. 3. Develop interactive educational tools. Support local educators with professional development opportunities and local artist in producing digital projects.

GOALS

1. To future proof the stories and knowledge of the Gwich’in.
Indigenous groups, artists, technologists, academics and leaders are developing partnerships, initiatives and research projects like never before. It is time for northern voices to be a part of those conversations. Virtual Gwich’in plans to develop relationships with indigenous supporters and digital labs across the world through the sharing of knowledge and support.
Indigenous peoples’ contributions are essential in designing and implementing solutions for ecosystems. Traditional knowledge and heritage can contribute to environmental assessments and sustainable ecosystem management. For example, the sustainable production and consumption of indigenous and traditional food has invaluable benefits for natural resources and ecosystems, contributes to a sustainable and healthier diet, and helps mitigate climate change.

Strategic Plan

Virtual Gwich’in carries out its mission through focusing on the following strategic priorities:

1. **Priority #1**
   Dinjii Zhuh & Caribou Dome Project

2. **Priority #2**
   Dinjii Zhuh Language Revitalization with Artificial Intelligence

3. **Priority #3**
   Dinjii Zhuh Mobile Center

4. **Priority #4**
   Become a Virtual Indigenous Center of Excellence
All of the activities by Indigenous AI will be accompanied by capacity-building measures, empowering Gwich’in community members with valuable skills to collect annotated data for machine learning, conduct AI research, and leverage the results to build engaging voice experiences for language learning as well as machine learning.

It will allow the development of interactive, immersive deep neural net technology.

- Gwich’in ASR will enable automated audio transcription, speech recognition.
- The initial Gwich’in ASR will recognize the core language, thus empowering the learners to immediately apply their knowledge in conversations.

The Minimal Course consists of a meticulously selected series of small, easily learn-able lessonlets, grounded in Indigenous language and culture, devised and led by linguist Dr. Conor McDonough Quinn in close collaboration with language teachers and knowledge holders of the respective Indigenous communities.

Dr. Conor McDonough Quinn is a documentary and revitalization/reclamation linguist who has worked extensively with Indigenous communities in Canada and the United States, focusing on language documentation, revitalization, and protection. He has also contributed to the development of automatic speech recognition solutions for Makah and Kwak’wala.

Caroline Running Wolf is a language activist, XR producer, educator, administrator, and co-founder of Indigenous AI LLC. She is also passionate about Indigenous data sovereignty and AI ethics.

MICHEAL RUNNING WOLF is a citizen of the Crow Nation. Caroline is a language activist, XR producer, educator, administrator, and co-founder of Indigenous AI LLC. She is also passionate about Indigenous data sovereignty and AI ethics.

Photos taken by: Peter Mather
Synopsis

The story of the Porcupine Caribou herd’s annual migration from Alaska to the Northwest Territories is the story of the Gwich’in people. For 30,000 years, the Gwich’in have lived with, revered, and cared for this animal, harvesting only what they need. The Porcupine herd thus remains one of the last great migrations in one of the last intact wild places on the planet. This spectacular landscape and story lend themselves perfectly to 360 dome projection and 3D VR, inviting audiences to immerse themselves with the Gwich’in and caribou on this epic journey across the Arctic.

Through both a linear narrative and interactive map, viewers will be able to explore the Gwich’in culture and lands in a unique and powerful way.

The creation of this experience offers unparalleled language and media education opportunities for Gwich’in. Working with outside experts in VR film-making, they will learn through doing-developing new media skills to tell more of their own stories.

The essential equipment and mobile studio that facilitates this production will live on to serve future projects. And by telling this foundational story in their own words and voices, Gwich’in will create the ideal tool for preserving and teaching their language.
KEY THEMES

Resilience
Resilience Exploring the deep history and relationship between the Gwich'in and Porcupine caribou herd, highlighting the successes of multi-party management and conservation envisioned by the 1987 Agreement between Canada and the US. The film will also underscore the ongoing threats posed by climate change and pressure to develop ANWR for oil and gas thus, Gwich’in resilience must extend well into the future, continually adapting to new challenges and persevering to preserve caribou habitat.

The Porcupine Herd
Conveying its global significance as one of the last great Caribou migrations of over 2,500 km on the planet, visible from space.

Language
Language - by telling the story in the Gwich’in language, along with various audio and caption options, this experience will provide a powerful tool for the nation's growing language education program.

Landscape
Landscape - a character unto itself, using VR to capture Gwich’in territory and the Arctic in all its splendor and variations throughout the seasons.
THE PROCESS

We will employ an innovative approach to production, using two different camera systems and multiple lenses to record the same scenes and locations in four different ways:

1. An Insta360 Titan, optimal for 3D headset experiences
2. A RED V-Raptor XL camera with an Entaniya HAL 220 fish-eye lens (or comparable), optimal for dome projection
3. The same RED V-Raptor XL camera but with conventional lenses, to capture conventional footage for use in marketing materials and companion media.
4. We will apply the same approach to drone filming, mounting both 360 and conventional cameras to a DJI Inspire 2 drone
Through both a linear narrative and interactive map, viewers will be able to view the last great migrations in one of the last intact wild places on the planet. The Porcupine herd thus remains one of the last great symbols of nature. Over the last 15 years, the Gwich’in have lived with, revered, and cared for this animal, which has been an integral part of their culture and way of life for centuries. The story of the Porcupine Caribou herd’s annual migration from Alaska to Yukon has been preserved and passed down through generations.

**IMPACT VR TEAM**

**OLIVIER LEROUX**

OLIVIER LEROUX is a VR cinematographer and instructor based in Vancouver, BC. Originally born in Quebec, Olivier is a pioneer of 360 video. He has been experimenting with virtual reality and 360 video since 2013. He is a world traveler and adventurer. He has filmed 360 video in more than 10 different countries and is currently working on an immersive travel series, along with a short feature film.

**DAMIEN GILLIS**

DAMIEN GILLIS is a filmmaker based in Campbell River, BC. He is the co-director and co-producer of the documentary feature Fractured Land and the publisher of the online journal The Common Sense Canadian. His short documentaries Oil in Eden, Farmed Salmon Exposed and Powerplay have screened in numerous festivals around the world and been streamed hundreds of thousands of times online. For the past 15 years, he has worked closely with conservation groups and First Nations — including the Heiltsuk, Kwakwaka’wakw, and Treaty 8 nations.

**OUTCOMES**

A professional immersive dome project; to be presented at museums, festivals and schools.

Stock footage of the Gwich’in Territory for future Virtual Gwich’in projects.

Training for local adults and youth in process of media production.

Equipment for local media production and training.
PRIORITY #2
Dinjii Zhuh Language Revitalization with Artificial Intelligence

LANGUAGE REVITALIZATION WITH TECHNOLOGY
Gwich’in language and culture reclamation efforts can boost their effectiveness and reach by utilizing new and advanced technologies. Artificial Intelligence such as **Automatic Speech recognition** (ASR) enables automated transcription, voice assistants like Siri, as well as educational apps and interactive immersive experiences. Virtual Gwich’in will create language learning materials utilizing the **Minimal Course** methodology. By recording pre-transcribed audio of The Minimal Course on a mobile app through the **500 Phrases Initiative**, we will collect the necessary corpus data towards the goal of developing ASR for Gwich’in. This flagship project will be pursued in partnership with Indigenous AI, LLC.

### Indigenous AI + Virtual Gwich’in Projects:

#### Speech Recognition
- The initial Gwich’in ASR will recognize the core vocabulary feeding everyday usage as identified during the development of The Minimal Course and 500 Phrases Initiative. It will take digital audio files as input and return text corresponding to the audio in the Gwich’in orthography.
- The Gwich’in ASR solution will utilize industry-standard Deep Neural Net technology.
- Gwich’in ASR will enable automated audio transcription, voice assistants such as Siri, Alexa, or Google Voice, as well as rich voice-forward interactive education systems. It will allow the development of interactive, immersive experiences. By developing VR-based training of learners in beginner fundamentals, shy learners can practice with an interactive voice experience until ready to handle face-to-face conversation. This allows fluent speakers to focus on teaching more advanced grammar and language concepts.
- Other dialects of Gwich’in can be easily onboarded benefiting from a strategy called Transfer Learning.

#### 500 Phrases
- The 500 Phrases Initiative records “pre-transcribed audio”, consisting of The Minimal Course phrases and additional phrases that are chosen based on their effectiveness for language learning as well as machine learning.
- A fluent speaker models the correct pronunciation of the 500 Phrases, allowing language learners of all ages to practice and gain confidence in their pronunciation before recording their voices.
- Recording of the 500 Phrases happens through a Recording App downloadable to mobile devices. This “pre-transcribed audio” is part of the initial dataset for training the ASR models.

#### Minimal Course
- The Minimal Course is a language-teaching methodology devised and led by linguist Dr. Conor McDonough Quinn in close collaboration with language teachers and knowledge holders of the respective Indigenous communities.
- The Minimal Course seeks to minimize learner anxiety and maximize immediate communicative competence.
- The Minimal Course consists of a meticulously selected series of small, easily learn-able lessonlets, grounded in everyday conversational situations, in which learners walk step-by-step through all the key landmarks of the language, thus empowering the learners to immediately apply their knowledge in conversations.
This community-driven approach deploys the technology thoughtfully: creating comfortable, meaningful interactions with carefully prioritized core-language content, and helping address the individual/community-level emotional challenges of language reclamation.

All of the activities by Indigenous AI will be accompanied by capacity-building measures, empowering Gwich’in community members with valuable skills to collect annotated data for machine learning, conduct AI research, and leverage the results to build engaging voice experiences for language revitalization.

**THE TEAMS**

**CAROLINE RUNNING WOLF**

CAROLINE RUNNING WOLF (Crow Nation) née Old Coyote, is a citizen of the Crow Nation. Caroline is a language activist, XR producer, educator, administrator, and co-founder of Indigenous AI LLC. Caroline is currently pursuing her PhD at the University of British Columbia in Vancouver, BC. Her research explores potential applications of immersive technologies (AR/VR/XR) and artificial intelligence to effectively enhance Indigenous language and culture reclamation. She is also passionate about Indigenous data sovereignty and AI ethics.

**MICHAEL RUNNING WOLF**

MICHAEL RUNNING WOLF (Northern Cheyenne) is a citizen of the Northern Cheyenne with Lakota and Blackfeet family ties. Michael co-founded Indigenous AI LLC. He is a former engineer for Amazon’s Alexa and a former Computer Science instructor at Northeastern University focusing on AI, computer science, and mixed reality. As an AI ethicist who is passionate about Indigenous language and culture reclamation, Michael has been researching technical strategies to create Indigenous ASR and received a MIT Solve Fellowship and Patrick McGovern AI for Humanity Prize to work with highly polysynthetic languages in the Pacific Northwest. Michael is currently pursuing his PhD in Computer Science with a focus on AI at McGill University in Montreal, QC, where he is continuing this work building an automatic speech recognition system for Indigenous languages.

**DR. CONOR MCDONOUGH QUIN**

DR. CONOR MCDONOUGH QUIN is a documentary and revitalization/reclamation linguist who has worked since the mid-1990s on the morphosyntax and morphosemantics of polysynthetic stem structure and related grammatical properties of Eastern Algonquian languages, with special focus on how formal/scholarly models enable practical approaches to community language revitalization/reclamation pedagogy. As part of the Indigenous AI team, he is currently finalizing the Minimal Course for Makah and scheduled to begin the Minimal Course for Kwak’wala.
All of the activities by Indigenous AI will be accompanied by capacity-building measures, empowering Gwich’in community members with valuable revitalization skills to collect annotated data for machine learning, conduct AI research, and leverage the results to build engaging voice experiences for language as well as rich voice-forward interactive education systems. Gwich’in ASR will enable automated audio transcription, Deep Neural Net technology, and Virtual Gwich’in Speech Recognition. The 500 Phrases Initiative records “pre-transcribed audio”, consisting of The Minimal Course phrases and additional close collaboration with language teachers and knowledge application in conversations. The Minimal Course methodology. By recording pre-transcribed audio of The Minimal Course on a mobile app through the Automatic Speech Recognition Recording App downloadable to mobile devices.

Outcomes:
- Initial Gwich’in ASR model (for the Fort McPherson dialect) trained on core language content
- Training for local adults and youth in:
  - The Minimal Course methodology
  - Process of corpus collection and machine learning
  - Annotation of digital Gwich’in audio in ELAN transcription software

THE TEAM

DR. SHAWN TSOSIE

DR. SHAWN TSOSIE (Navajo / Little Shell) is a Machine Learning Data Scientist working on Indigenous cultural revitalization. He is an Iraq War Veteran raised in rural Montana. He received his undergraduate degree from MIT and his masters and PhD degree in Mathematics from UC Santa Cruz. As part of the Indigenous AI team, he is currently developing the ASR solutions for Makah and Kwak’wala.

LYLE FABIAN

LYLE FABIAN (Dene) Lyle Fabian is the owner of KatloTech Communications, has worked in the IT sector for the past 16 years, and has earned designations as a Cisco Certified Network Associate (CCNA) and Fiber Optic Certification (CFOT) from the Fiber Optic Association (FOA). Lyle continues to work towards assisting both the mining industry and First Nation communities in building new IT networks.

WILLIAM FIRTH

WILLIAM FIRTH is Teeitl’it Gwich’iin who has worked with the Gwich’in Language and Culture for the last 36 years, and one of the last fluent speakers of his language age group. Has a Degree in Language Revitalization and Retention with the University of Fairbanks, Alaska with a major in Linguistics. Current host for CBC North’s Gwich’in radio program Nantaii, from Teeitl’it Zheh.

OUTCOMES

- Language learning materials created following The Minimal Course methodology.
- Up to 300 hours of digital audio files with corresponding transcription in Gwich’in.
- Initial Gwich’in ASR model (for the Fort McPherson dialect) trained on core language content.
Virtual Gwich'in would like to support the development of digital skills throughout the Gwich'in Territory. We believe the best way to do so is to build a Mobile Media lab capable of assisting programming and projects centered around STEM fields, digital media and more.

This model of program delivery is extremely cost-effective when it comes to traveling in the Gwich'in Territory. Airfare and cargo in the Gwich'in Territory are extremely expensive especially when traveling to remote communities.

Communities in the Gwich'in Territory are also accessible either through the Dempster Highway or by ice road for a period of 4 months a year.

Air Vs. Road

For 2 people, to fly from Ft. McPherson to Arctic village (return) would cost: CAD $6,000.00 - $7,500.00

For 2 people, to drive from Ft. McPherson to Arctic village (return) would cost: CAD $2,000.00 - $2,500.00.

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**PRIORITY #3**

**Dinjii Zhuh Mobile Center**

**1. External Storage**
- Tents
- Tables
- Stands
- Solar Chargers

**2. 4x4 Conversion**
- For various road conditions
- Highway and Ice Road conditions

**3. Large Storage:**
- 3D printers
- Cricut Pro Cutters
- VR headsets
- Production Gear

**4. Locked Storage**
- Laptops
- Cameras
- 360 Cameras
- Microphones

**5. General Storage**
- Cables/Adapters
- SD cards
- Accessories
- Pelican cases

**6. Sound Proofing**
- For "on-site" audio recording interviews, sound effects, dialog and more

**7. Presentation Gear Storage**
- Short Throw Projectors
- 5.1 surround system
- Fold-able Screens

**8. Digital Workstation**
- On-board computer
- Fixed Monitors
Virtual Gwich'in would like to support the development of digital skills throughout the Beaufort Delta. We believe the best way to do so is to build a Mobile Media lab capable of assisting programming and projects centered around STEAM.

When it comes to traveling in the NWT, airfare and cargo in remote communities can be expensive.

Communities in the Beaufort Delta are also accessible by road for a period of 4 months yearly.

### External Storage
- Tents
- Tables
- Stands
- Solar Chargers

### 4x4 Conversion
- For various road conditions

### Locked Storage
- Laptops
- Cameras
- 360 Cameras
- Microphones

### Large Storage
- 3D printers
- Cricut Pro Cutters
- VR headsets
- Production Gear

### General Storage
- Cables/ Adapters
- SD cards
- Accessories
- Pelican cases

### Presentation Gear Storage
- Short Throw Projectors
- 5.1 surround system
- Fold-able Screens

### Digital Workstation
- On-board computer

Air Vs. Road:

- McPherson to Arctic village (return) would cost: CAD $5,000.00 - $6,500.00.
- For 2 people, to drive from Ft. McPherson to Arctic village (return) would cost: CAD $1,200.00 - $1,500.00.

**Outcomes:**
- Adobe Photoshop, Premier Pro, Illustrator, Medium Workshops.
- CAD $75,000.00 - $250,000.00 (Mobile Lab)
- CAD $1250.00- $5000.00 (Costs/ Workshop)

**Images from workshops facilitated by Davis Heslep in the NWT**

**Porcupine Caribou Migratory Map - Gwich'in Communities**

Sources: Ecotrust, ESRI, Alaska Science Center, U.S. Fish & Wildlife Service

John Blanchard / The Chronicle
"A Virtual Indigenous Center of Excellence based at Teetl'it Zheh, is one of our achievable goals. A premier Arctic research and technology demonstration centre, and to be a catalyst for introducing successful technologies that embrace the partnership of modern technology with Indigenous lifestyles, into Indigenous Arctic communities."
PRIORITY #4
Become a Virtual Indigenous Center of Excellence

Research, demonstration, and application (RDA) excellence based in Teetl’it Zheh (Fort McPherson), Northwest Territories, in the Western Canadian Arctic. Teetl’it Zheh, home to the Teetl’it Gwich’in People, is located on the east bank of the Peel River, north of the Arctic Circle on the Dempster Highway. VICE is developing the RDA with Gwich’in Indigenous Knowledge and new technology for Arctic communities. While its home base is Teetl’it Zheh, its Vision is truly circumpolar.

We work and learn from each other, while using the latest developing technology, to become a Virtual Indigenous Center of Excellence, which is the new way of working, in this post global pandemic world.
Mahsi Cho

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