Heritage in virtual environments

ONCE UPON A TIME ...IN THE FUTURE

Conference on digital promotion and preservation of heritage

Hybrid event in Reykjavík, Iceland - Thursday June 16

PHIVE

Northern Periphery and
Arctic Programme
2014–2020

EUROPEAN UNION
Investing in your future
European Regional Development Fund

Final Conference Programme

Venue: Veröld - house of Vigdís Finnbogadóttir,
University of Iceland, Reykjavík, Iceland

Date: Thursday, 16th June 2022. Time: 9:00 - 16:00 GMT
Conference moderator: Skúli Björn Gunnarsson

9:00 - 11:30 OPENING AND KEYNOTES
Auðarsalur in Veröld (VHV-023)

11:30 - 13:00 DEMONSTRATIONS AND LUNCH BREAK
Open space in the basement by the café (downstairs)

13:00 - 15:00 PARALLEL SESSIONS ON VARIOUS TOPICS

Session 1: Virtual Reality and Digital Reconstruction   (VHV-023)
Session 2: Immersive Storytelling   (VHV-103)
Session 3: Digital Preservation, Community Engagement
      & Crowdsourcing   (VHV-007)
Session 4: Virtual Museums, Virtual Tours and Tourism   (VHV-104)
Session 5: Game-based Approach to Heritage   (VHV-107)
Session 6: Staða stafræns menningararfs á Íslandi   (VHV-108)

15:00 - 15:30 COFFEE BREAK

15:30 - 16:00 CLOSING REMARKS
Auðarsalur in Veröld (VHV-023)

GUNNARSSTOFNUN   HÍ   Reykjavik University   GAGARÍN   Minjastofnun Íslands   1238 THE BATTLE OF ICELAND   ÞJÓÐMINJASAFN ÍSLANDS National Museum of Iceland

EFLA   MSHL   Tækniskólinn skóli atvinnulífsins

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Opening Speech
Guðni Th. Jóhannesson
President of Iceland

KEYNOTES
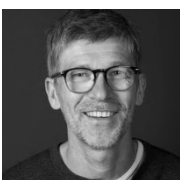
Into the Heritage-Verse
Erik Champion
Enterprise Fellow at the University of South Australia

Representations of Icelandic Cultural Heritage in the
Video Game Island of Winds
Guðrún Þóra Gunnarsdóttir
Lead Graphic Designer of Parity, Iceland

The What, Why and How of Digital Cultural Heritage
Knut Paasche
Head of Departments at NIKU, Norway

Digitising The Past For A Better Future
Jacquie Aitken
Curator at Timespan, Scotland

Exploring Threats and Opportunities for Social
Impacts Cultural and Natural Heritage
Alan Miller
Lecturer at the University of St. Andrews, Scotland

9:00 - 11:30 OPENING AND KEYNOTES
Auðarsalur (Auditorium) in Veröld (VHV-023)

9:05 - 9:15   Opening speech - **Guðni Th. Jóhannesson**, President of Iceland

KEYNOTE LECTURES

9:15 - 9:40   <u>Into the Heritage-Verse</u>   [virtual from Australia]
Erik Champion, Enterprise Fellow at the <u>University of South Australia</u>

Proponents of virtual reality, extended reality, and the "Metaverse' suggest the digital future of multiple entertainment and education worlds is imminent. And the field of virtual heritage (virtual reality and related technologies) is arguably over three decades old already. If this is true, and given that we are saturated by phone-media, apps, and games, why is it so hard to find example of virtual heritage? What is stopping the uptake of these new technologies? And how can we use these new, imminent, and hyped devices and platforms for the benefit of digital heritage, or are there conceptual challenges still to be resolved?

Erik Champion is an Enterprise Fellow at the University of South Australia. He is also an Honorary Professor at <u>ANU Centre for Digital Humanities Research (CDHR)</u> at the Australian National University (ANU), Canberra, an Honorary Research Fellow at the <u>School of Social Sciences,</u> University of Western Australia, and Emeritus Professor at Curtin University. At Curtin he was UNESCO Chair of Cultural Heritage and Visualisation, as well as Visualisation Theme Leader and Steering Committee member at the <u>Curtin Institute for Computation</u> (CIC). Prior to Curtin he was the Project Leader of DIGHUMLAB in Denmark. In the last three years he has also been a chief investigator on five national grants, all relating to digital heritage or to digital humanities infrastructure research.

His recent books are *<u>Rethinking Virtual Places</u>* (Indiana University Press, 2021), *<u>Critical Gaming: Interactive History and Virtual Heritage</u>* (Routledge, 2015), and *<u>Playing with the Past</u>* (Springer, 2011). He also wrote *<u>Organic Design in Twentieth-Century Nordic Architecture</u>* (Routledge, 2019). He edited the open access book: *<u>Virtual Heritage: A Guide</u>* (<u>Ubiquity Press</u>, 2021) *<u>The Phenomenology of Real and Virtual Places</u>* (Routledge, 2018), <u>Game Mods: Design, Theory and Criticism</u> (ETC Press, 2012) and co-edited *<u>Cultural Heritage Infrastructures in Digital Humanities</u>* (Routledge, 2017). He is currently co-editing two books, *Assassin's Creed in the Classroom: History's Playground or a Stab in the Dark?* (De Gruyter, 2022) and *Screentourism and Affective Landscapes* (2023).

9:40 - 10:05   <u>Representations of Icelandic Cultural Heritage in the Video Game Island of Winds</u>
Guðrún Þóra Gunnarsdóttir, Lead Graphic Designer of <u>Parity games</u>.

Island of Winds is in a way a mirror of Iceland in the 17th and 18th century, although never an accurate one, more of an interpretation from the viewpoint of a modern person of what an Icelandic computer game could be. From clothing to living conditions, cultural artefacts, mythical beasts and folklore, to representing the female art form of stitching in user interface. The people of Parity have the ambition to bring people even closer to examining these things that players will encounter in game, in a virtual museum connecting both worlds - one the player will be able to encounter from the game itself and through mobile.

Guðrún Þóra Gunnarsdóttir has dedicated her studies to art, design and cultural studies. She graduated from the art division of her Icelandic matriculation examination; she studied art theory and later folkloristics in the University of Iceland; later she graduated RADE with a diploma in multimedia design. She also studied Graphic Design in the Marbella Design Academy and Graduated with a BA degree as a Graphic designer from the University of Hertfordshire. She has been working as a Lead Graphic Designer, UI designer and 2d animator at Parity for the last 4 years.

10:05 - 10:30   The What, Why and How of Digital Cultural Heritage
                 Knut Paasche, Head of Departments at NIKU in Norway

We see that ever larger parts of our cultural heritage are digitally documented in three dimensions. This is in connection with management, research and dissemination. It can be important to stop and look at how such projects are carried out, and not least, we must ask ourselves why present our cultural heritage digitally. The original is the best, right?

Dr Philos. Knut Paasche is an Archaeologist and Researcher; he is also Head of the Archaeological Department and the Department of Digital Documentation, Cultural Heritage and Landscape at NIKU. Paasche has worked as an Archaeologist for more than 25 years, four of these as County Archaeologist in Buskerud County. He has led many archaeological excavations and registration projects all around Norway. He has archaeological experience of all periods from the Stone Age, through the medieval period and up to modern times. His specialties are primarily the Viking period and the Middle Ages with a main focus surveying heavily stratified cultural heritage sites and the excavation of medieval towns. In addition, he spent four years working on ship archaeology and deputised as collections manager at The Viking Ship Museum in Oslo. Later, Paasche, in addition to creating and proposing a new reconstruction of the Tune ship, led a research project on a new documentation and reconstruction of the Oseberg ship. His current research focus is primarily on methodological approaches to archaeology and includes new opportunities and technical innovations for improved field documentation; satellite recording, electronic scanning and geophysical methods. Paasche is furthermore head of the Norwegian part of the "Ludwig Boltzmann Institute for Archaeological prospection and Virtual Archaeology", and several projects funded by the Norwegian Research Council. Paasche holds a Masters degree in Nordic Archaeology with focus on the Middle Ages. In his doctoral thesis he wrote about the documentation and reconstruction of archaeological objects, using a reconstruction of the Tune ship as an example.

10:30 - 10:55   Digitising the Past for a Better Future
                 Jacquie Aitken, Curator at Timespan in Helmsdale, Scotland

Timespan is a cultural organisation in Helmsdale (a small historic fishing village), in the north east coast of Sutherland, in the north of Scotland, with local, global and planetary ambitions to use digital heritage, as a generative tool for social change and connectivity in remote communities. This short paper expands on Timespan's rewarding collaboration with University of St. Andrews and the Northern and Arctic Periphery Programme, which has empowered our organisation as a digital innovation leader in the Highlands of Scotland, and placed us at the forefront of digital co-production and immersive reconstruction. This has provided new ways for audiences to interact with archaeological landscapes and heritage within and outside the museum, utilising authentic spatial immersion experiences to discuss critical histories and to raise social issues, and providing us with an integrated framework for bringing together art, heritage and digital in the process of museum redevelopment.

Jacquie Aitken is the Digital and Heritage Curator at Timespan, with a background in archaeology, museums and immersive technology, and a lifelong interest in researching Highland history, landscapes and communities. She has worked in the regional and independent sectors for over fifteen years. Her roles at Timespan include the digital curation of the museum and community co-production initiative People's Mobile Archive (PMA), and over the last four years, she has led the development of new digital visitor experiences and virtual reconstruction models of the past, as part of the Connected Culture and Natural Heritage in the Northern Environment (CINE) and Presenting Heritage in Immersive Environments (PHIVE). As a supporter of community archaeology, Jacquie is a traditional salt maker and coordinates the Brora Salt Pans Research Group.

10:55 - 11:20   Exploring Threats and Opportunities for Social Impacts Cultural and Natural Heritage
Alan Miller, Lecturer at University of St. Andrews

Engagement with heritage can be transformational. It can help us understand the essence of who we are and who we want to be. At the heart of heritage is the way we communicate from generation to generation, within and between communities. Through engagement with natural and cultural heritage we can reach out beyond the boundaries and borders exploring the social essence of what makes us human. Yet we live in an ever changing world which both threatens our heritage and offers new opportunities for engaging with it. Our heritage is both precious and fragile. It is threatened by conflict, climate change and pandemic. At the same time digitisation offers ever changing ways of engaging which are both immersive and mobile. In this talk we will draw upon the experience of projects like EU LAC Museums, CINE, STRATUS, PHIVE and HIVE to explore how to work with immersive and mobile technologies to put communities in the driving seat of exploring, defining, collecting and communicating heritage. By helping us understand the past digital engagement offers the potential of imagining and realising a better future. This talk will explore how that may be realised.

Alan Miller is a lecturer in cultural heritage and digital heritage at the University of St Andrews. Working in the multidisciplinary Open Virtual Worlds group (openvirtualworlds.org) he has been exploring how immersive and mobile technologies can help us to understand and communicate our understanding of the past. Working with museums and heritage organisations, such as the Timespan Museum, West Highland Museum, Barbados Historical Society, the Finlaggan Trust and North Uist Historical Society and Gunnar Gunnarsson Institute, OVW has been helping build the capacity of communities to use digital technologies define, curate and communicate heritage. Digital reconstructions such as St Andrews Cathedral, St Kilda and Skriðuklaustur monastery, have formed the core of immersive exhibits, museum at home experiences and museum without walls apps. Looking to the future. Alan aims to build on experience in projects such as EULAC (eu-lac.org) museums, CINE (cineg.org) and CUPIDO (cupidity.org) to develop a northern network (northernheritage.org) focused on realising the opportunities of immersive and mobile technologies to build the capacity of communities to collect, citrate and communicate heritage.

11:20 - 11:30   Northern Network for Digital Promotion and Preservation of Heritage
Skúli Björn Gunnarsson, Project manager of the PHIVE project.

11:30 - 13:00   DEMONSTRATIONS AND LUNCH BREAK
Open space in the basement by the café (downstairs)

Around 20 projects, companies and organisations will be presenting and demonstrating their technical solutions and tools related to cultural and natural heritage. Sandwiches and drinks provided to the conference attendees.

13:00 - 15:00 PARALLEL SESSIONS ON VARIOUS TOPICS
(VHV-023 / VHV-007 / VHV-103 / VHV-104 / VHV-107 / VHV-108)

SESSION 1:   VIRTUAL REALITY AND DIGITAL RECONSTRUCTION   (VHV-023)

Virtual reality has given us the opportunity to reconstruct and experience disappeared buildings and landscapes. Digital representations of the past are usually based on scientific research and excavation but foremost it is a tool to interpret our ideas and theories of how things could have been. In this session we hear of successful visualizations of the past and discuss what the technology allow us to create and where imagination takes over evidence-based restoration.

Finlaggan Lords of The Isles: From Reconstruction to Visitor Experience   [virtual]
Ray Lafferty, Secretary, Finlaggan Trust

In collaboration with staff and students from St Andrews University we created a virtual reality reconstruction of the historic site of Finlaggan seat of the Lords of the isles at the height of its power, c.1450. This is located at the Visitor Centre adjacent to the historic site. This was augmented by 3D photogrammetrical scans of a selection of artefacts, drone footage of nearby sites associated with the rule of the Lordship, and a video tour of the site in its current condition, which is an aid to wheelchair users. There is also a virtual reality app and an online video.
The virtual reality has proved popular with visitors contributing to us almost doubling our visitor numbers directly before COVID struck. The exhibit provides a fully immersive interactive experience where visitors are able to navigate around the reconstruction.

Digital Twins and the Einar Jónsson Museum Project   [virtual]
Þröstur Thor Bragason, Medialogist and partner at EFLA Consulting Engineers

In my talk, I will go over how something as simple as a winter holiday visit to a museum wound up being the start of a digitization/digital twin project for the Einar Jónsson Museum in Reykjavik, Iceland. I will also go into the methods that were used and how they've changed in the years since I started working as a 3-D modeller. I will also touch briefly on the different types of virtual reality that we've been trying out at EFLA Consulting Engineers.

Uist Unearthed - Increasing Engagement with Archaeological Landscapes Through Location-Based AR
Rebecca Rennell, Archaeologist, UHI Outer Hebrides, (et **Emily Gal** & **Jessica Wright**)

The islands of Uist, in the Outer Hebrides, boast internationally significant archaeological sites. Nevertheless, there are few impressive upstanding remains, fewer still with any form of on-site interpretation and limited material in local museums. This is challenging for communities and visitors wishing to engage in Uist's archaeological heritage.
The Uist Virtual Archaeology Projects meets these challenges head-on by recognising that Uist's strengths lie in its buried remains, located in rich and diverse landscapes. This innovative digital interpretation project raises awareness of Uist's unique sites and realises the potential of decades of archaeological research. The key output from this project is the Uist Unearthed app, which reimagines six important archaeological sites in stunning augmented reality (AR), offering an exciting trail-based experience for communities and visitors alike. It is the first of its kind in Scotland – presenting truly-immersive AR experiences of archaeological sites, triggered exclusively by site location. The mixed-media app contains stunningly detailed AR reconstructions of archaeological sites alongside detailed information from excavations, 3D models of artefacts, supporting audio material and interpretive images and animations. Following the launch of the Uist Unearthed app, this presentation will reflect on the challenges and opportunities associated with implementing location-based AR at heritage sites.

The Power of Procedural Generation and AI For Quick But Engaging VR
Hannes Högni Vilhjálmsson, Professor, Dept. of Computer Science, Reykjavik University & co-founder of Envalys

Creating good content for VR is very time and labor intensive. This is in part due to the high fidelity requirement for good VR environments. Participants are able to inspect every crack in a wall while also being able to enjoy the distant natural scenery. Manually crafting every detail to ensure such fidelity is daunting, and some of that expensive effort may have been for nothing, when the attention of participants lies somewhere else. Photogrammetry is a popular, and a relatively quick, way to create VR content based on real-world locations and objects. But for larger environments photogrammetry tends to produce washed out detail and visual artefacts, aside from the biggest limitation: Inability to modify scanned features. It seems that for re-creating the past or visualizing the future we are stuck with very costly options. However, computational techniques for essentially growing high-fidelity environments from relatively simple maps offer a glimmer of hope. These procedural approaches are often based on rules that associate visual elements of high detail to different features in the environments, such as paths and open meadows. When features are modified, new environments can be quickly generated. This talk will introduce the power of procedural content creation for VR in general, and also provide practical examples from the Cities that Sustain Us project. The talk will moreover touch on the role of automation in populating the environments with reactive virtual people with a dash of social intelligence.

Timespan, Digital Curation and Co-production: Where's the Evidence?
Jacquie Aitken, Digital heritage curator at Timespan, Scotland

Timespan museum has been at the forefront of exploring digital engagement and immersive reconstructions within museums, with our collaborators at the University of St. Andrews, over the last 10 years. This has provided new ways for our audiences to interact with heritage landscapes in the North of Scotland, both within and outside the museum's walls. We have recently developed immersive reconstructions of archaeological landscapes in Kildonan, at three shifting periods of agricultural and societal change, including an Iron Age Roundhouse Settlement (500 BC), Pre-Clearances Longhouse Township (1813) and the fishing village of Helmsdale at the height of the herring boom (1890). They feature landscapes, buildings, artefacts and characters from the past. The digitisation process draws on a multidisciplinary approach to building and presenting the past, enabling virtual time travel exhibits which make the past engaging and accessible. This short presentation summarises Timespan's digital work and its approach to evidence based methodologies for the reconstruction process.

SESSION 2:   IMMERSIVE STORYTELLING   (VHV-103)

Storytelling is an ancient part of human activities and culture. A good narrator brings his audience into a new world, another time. In this session we discuss how new technology such as virtual reality and augmented reality can be used to give people immersive experience and what all kinds of media can bring to a simple narrative to evoke imagination or give information about heritage.

Immersive Storytelling in Pedagogy, Research, and Project Promotion   [virtual]
Ariana Ellis, Doctoral Candidate, University of Toronto, Department of History

Immersion is a powerful tool for public connection and engagement which brings with it questions of bias, audience education, and anachronism. These are all issues the digital heritage industry faces, and all issues I grapple with in the creation and use of digital tools in my work as a researcher, tutorial leader, and course instructor. Storytelling has become the focal point of my pedagogical and research methodologies, and in my presentation for this conference I propose to demonstrate how I use soundscape design, game design, and immersive storytelling to facilitate not only enthusiastic engagement but also self-reflection and critical participation. I will use examples from the pedagogical soundscapes and games I have created and used in my classes, my immersive project 'Accessing Anna' (https://accessinganna.ca/) which strives to highlight the sensory manipulation involved in the attempted

forced conversion of an 18th century Jewish woman in Rome, and my experiences working as the Communications Manager of the University of Toronto's DECIMA Project (https://decima-map.net/) to discuss how I approach these challenges, the responses I have received, and how I continue developing my projects and tools.

From Barbados to Uist: Immersive Storytelling in Hands Across the Atlantic [virtual]
Marri Morrison, Laura Donkers & Sharon Pisani, Comann Eachdraidh Uibhist a Tuath (North Uist Historical Society)

This exciting project, 'Hands across the Atlantic', involves 'Feasgar Diluain' a group of teenage, heritage film makers from our Junior Comann Eachdraidh on the Isle of North Uist. Over 2022 they are working, with the help of a professional film-maker on a series of 'virtual' storytelling exchanges with the young people's theatre group attached to the Barbados Museum, 4000 miles away. They are discussing how past cultures and traditions inform their present and exploring how important these are to each's sense of place and belonging, using digital exchanges in drama, film, music and photography. They will reflect upon and share what they feel the benefits of the partnership are through a designated platform, sharing ideas as these develop and, we hope, demonstrating new understandings through their final story choices, researched and drawn from vernacular storytelling sources. The website will incorporate opportunities for informal exchanges and will initiative a story and storytelling archive, a joint treasure store, which will allow for both islands to continue to add to it and perpetuate the links into the future.

Storytelling Creates Business Opportunities in Värmland
Katarina Nordmark, Manager, International Secretariat, Värmland County Administrative Board

The storytelling tradition is unique in Värmland and is an important part of our identity. Värmland has and had many famous storytellers and the growth continues in art forms such as theatre, literature, music, dance and visual arts. Culture and cultural heritage still play a major role in Värmland and has become increasingly important in the discussions about the development of the region. For the tradition of storytelling to continue to be a strength, it requires that we show existing culture and cultural heritage in new forms, and also that we show new forms of culture.

Through the CUPIDO project partners in Värmland are connecting digital innovation with cultural heritage to explore new ways of keeping the tradition of storytelling alive and bring forth alternative ways of expressing and experiencing culture. Several testbeds are exploring digital innovations and new technology connected to traditional culture, such as dance, theatre, music and art. Multi-streaming, VR, AR and 360 videos are some of the digital tools that's being tested. Together these testbeds are examples of how we in Värmland try to find new ways of storytelling to promote cultural sites and offerings and to create new business opportunities in the cultural sector.

Augmented Reality Storytelling in Cultural Heritage Dissemination
Gunnar Liestøl, Professor, Dept. of Media & Communication, University of Oslo & professor II at Museum Nord

Augmented Reality (AR) is increasingly being employed in Cultural Heritage settings, both indoors and outdoors. How may we best exploit this emerging medium to advance new narratives and find novel forms of storytelling for Cultural Heritage communication and dissemination? The talk will present lessons learned over the past decade using examples from a variety of Cultural Heritage sites in Norway, Europe and North America; starting out with static environments focused on reconstructions of buildings, and moving to simulations of complex historical events. The presentation will also include examples of 'place history' and of how Augmented Reality storytelling can serve as an interface for online access to archaeological databases using 3DHOP.

Storytelling in Other Realities
Lemke Meijer, Interaction and Concept Designer, [Gagarin](#)

Augmented and virtual storytelling have shown very interesting opportunities within the traditional museum context as well as bringing stories beyond the walls of exhibition spaces. Within the realm of these new 'realities' the challenge lies in navigating the possibilities. In the past years Gagarin has done extensive research into approaches and finding the qualities of these new media that fit our storytelling mission. Along a showcase of several projects of the past years the audience will be guided along the diversity of these media, do's and don'ts, and finally how to navigate AR/VR possibilities that might fit your project.

SESSION 3: DIGITAL PRESERVATION, COMMUNITY ENGAGEMENT & CROWDSOURCING (VHV-007)

Digitisation of heritage collections is an important part of giving more people access to virtual copies of original items and preserve artefacts in digital replicas. In COVID times museums and archives realised more than ever how vital it is to use the internet to bring heritage to people, and how the curiousity of the crowd can be harvested in informative and creative ways. In this session we learn about community engagement, co-production and we discuss how crowdsourcing can be used to gather information and preserve cultural heritage.

Digital Heritage in Greenland - Experiences, Initiatives, Challenges   [virtual]
Christian Koch Madsen, Deputy Director, [Greenland National Museum & Archives](#)

Like heritage institutions all over the world, Greenland National Museum & Archives is increasingly looking to digital and visual technology and tools in our heritage management, research, outreach, and participatory approaches. In this paper, we provide an overview of our different projects - past and ongoing - in using different digital technologies to lift and improve the tasks and visions of a modern, inclusive museum. The possibilities for future development in digital heritage approaches are seemingly endless and exponentially growing, and the essentially borderless technology perfectly suited for Greenland's highly dispersed settlement. However, experience has also raised our awareness that each digital heritage project also presents new challenges. For instance, how do we secure and update new data, digital platforms, tools and knowledge? How do we sustain and fund digital initiatives post creation? Do we need to? Are the digital projects we - often in collaboration with foreign partners - what the public and institutions are looking for? Based on these experiences and challenges, we at the Greenland National Museum and Archives feel a need to critically consider and explore what are the sustainable digital heritage approaches in the small communities of the Arctic.

The Nunalleq Educational Resource: A Case Study in Co-Design from Quinhagak, Alaska
Alice Watterson, lecturer, [University of Dundee](#)

Since 2017 researchers and artists from the Universities of Dundee & Aberdeen have been collaborating with the local Yup'ik community in Quinhagak, Alaska, to co-design interpretive outreach material for the Nunalleq Archaeology Project. Our aim is to co-curate the story of the archaeological excavations in a way which engages with Yup'ik ways of knowing and traditional oral storytelling, creatively uniting science and history with traditional knowledge and contemporary lived experiences. Focusing on two key outcomes, the Nunalleq Educational Resource for schools and our ongoing Nunalleq Digital Museum & Catalogue project, this talk will reflect on the processes of community co-design for these interactive digital resources. We will consider challenges and lessons learned through the processes of interpretation from varied perspectives and the diverse ways in which people connect to the past. Ultimately, we will consider what role interactive media can play in addressing ever evolving challenges in heritage communication, source community representation and the creation of new knowledge and meaning for Indigenous archaeology and digital museum collections. Nunalleq Educational Resource: [seriousanimation.com /nunalleq/](#)

Empowerment for Digital Resiliency: 3D Preservation, Knowledge Exchange, and Virtual Museum Infrastructures
Catherine Anne Cassidy, PhD Candidate, [University of St Andrews](#)

We present strategies for 3D digital adoption by heritage organisations which stood resilient under the test of COVID-19. Methods were created and tested during pre-pandemic conditions and applied for COVID-19. A practice-based methodological approach to exploring ways in which to engage digital audiences while expanding digital competencies and capacities within the museum. Working within the constraints of national restrictions, creative digital opportunities progressed rapidly. Through 3D digitisation, digital skill learning, and systems development, we have established responsive capacities for future museum digital engagement. Through research we have explored ways in which museums can engage with online audiences and further develop digital offerings for future hybrid activities. Comparative analysis and qualitative feedback evaluate the strengths and challenges of these modes of engagement. In doing so we hope to contribute to understanding in engagement with emergent 3D technologies.

Ísmús: Voices From The Past and Links To The Future
Trausti Dagsson, Project Coordinator, [The Árni Magnússon Institute for Icelandic Studies](#)

The website [Ísmús](#) provides access to recordings from the ethnographic collection of the Árni Magnússon Institute for Icelandic Studies. In addition, a database has been built on the web with sources about music in Iceland, instruments, musicians and bands in collaboration with the Musicology Museum of Iceland. In March 2022, a new and improved version of the web opened. Two large folklore databases have been added, Sagnagrunnur, a database of printed Icelandic legends and Ævintýragrunnur, a database of fairy tales from printed sources. The presentation will focus on the challenges of merging such databases and examine various new ways of dissemination, research and other opportunities that the new database gives.

Addressing Response To Climate Change Through Virtual Reality
Maria Andrei, Digital Developer and PhD Candidate, [University of St. Andrews](#)

In this talk we will discuss our efforts to use Virtual Reality to address climate change. Climate change is caused by the way we act on the planet. Yet the implications of our actions are often remote or appear abstract. Consequently, it is difficult to achieve the sort of social change which will halt and reverse climate change. We are developing digital models of familiar places which show how they will change as a result of climate change. We are using immersive technologies; game engines and headsets we are creating immersive experiences to test whether this approach brings home the reality of climate change and in so doing becomes a driver for changed behaviour.

From StoryTagging to Northword
Stewart Massie, Reader in AI at School of Computing at [Robert Gordon University](#)

This talk will look at the progress being made in developing the StoryTagging project into the NorthWord application. The idea is to take advantage of the NPA regions distinct cultural heritage reflected through a long tradition of storytelling to support creative organisations by linking specific local stories via one-off custom creations to creative practitioners. Core to the idea is the NorthWord digital platform that supports both storytellers, in content curation, and story seekers. Storytagging funded by the Northern Periphery & Arctic Programme is led by Robert Gordon University and spans Scotland, Northern Ireland, Ireland, Iceland, Norway, Sweden, and Finland. The project aims to respond to the economic challenges shared by creative practitioners across remote northern communities and to help increase the visibility and market reach of these businesses by providing a digital platform to market and promote products. The platform also serves as a resource to support sustainability of cultural heritage and for tourists, increasing visitor numbers to remote areas.

3D Modelling Archaeological Sites in Iceland

Sólrún Inga Traustadóttir, Project Manager, Research & Communication, [The Cultural Heritage Agency of Iceland](#)

Following the eruption in Geldingadalir in the Reykjanes Peninsula last year, the Cultural Heritage Agency of Iceland launched an initiative project making three-dimensional models of three scheduled archaeological sites endangered by the eruption. The project was carried out in collaboration with the archaeological companies, [NIKU](#) and [Antikva](#) ehf. In this talk, I will introduce the project, discuss its importance and show the 3D models we have so far created. Fortunately, the sites were not affected by the lava flow, but experts believe that this eruption is the beginning of increased volcanic activity in the area.

SESSION 4: VIRTUAL MUSEUMS, VIRTUAL TOURS AND TOURISM (VHV-104)

In the pandemic times we all got used to virtual meetings and digital voyage with the help of computer-based technology. Museums opened their digital doors to get remote visitors while the real access was totally closed. In this session we learn about platforms for virtual tourism and how the concept of virtual museum and tours can be extended and harvested for the sake of cultural heritage.

360° East Iceland Panorama [virtual]

Hafþór Snjólfur Helgason, Geographer and Multimedia Designer at [EFLA](#) Consulting Engineers

A introduction to the project "[East Iceland Panorama](#)" made for Múlaþing and Fljótsdalshreppur municipalities. How to make professional 360° Virtual tours on budget with entry level drones and 360° cameras. Edit workflow, programs and equipment.

Turning Virtual Museum Real

Alan Miller, Lecturer, [University of St Andrews](#)

Virtual Museums provide both a digital dimension to museums and enable museum like functionality to be accessed in virtual environments. The PHIVE project has built on work in CINE and EULAC in developing a virtual museum infrastructure. The goal is to provide frameworks that support new adventures in the digital domain. During COVID 19 we saw many museums extending their digital footprint, engaging with virtual tours, digital galleries live events and even virtual time travel
In this talk we will explore how the virtual aspects of museums can be integrated into the normal, whilst supporting new developments in virtual and augmented reality.

Touching the Void, Tourism and Intangible Heritage

Helen Jackson, Senior Lecturer in Interactive Media, School of Communication & Media, [Ulster University](#)

This paper investigates how technology-led immersion and interactivity, can bring new methodologies to the tourism and cultural heritage sectors to resolve experiences of intangible heritage. Where time has eroded the symbolic and material artefacts on which to validate and experience histories, key concerns for digital developers and cultural stakeholders is how virtual technologies can preserve and curate authentic histories as a lived consciousness, rather than intensifying distant mythical auras.
Presenting analysis of a range of her own projects of immersive-led technology experiences of Titanic, Temples, Sidhe Folk and Witches, Dr Helen Jackson discusses her approach to building AR and VR experiences across a variety of interpretation models, contexts and histories. Her analysis proposes a framework for using narrative and diegetic objects as a means to create a context for tangible interaction that appropriately bridges the real and the virtual and thus mitigate against the complex interpretive challenges associated with immersive technologies including false realism, constructed-ness and distance.

Past | Present | Future VR at Downpatrick Head
Danny O'Toole, Head of Digital Transformation at <u>Mayo County Council</u>

> *Connecting with emergent digital technologies and changing digital literacies is key to re-energising our towns, villages and communities. Stratus will use disruptive VR technologies to enable exploration of the Past, Present and Future, maximising social benefits from natural and cultural heritage*

StoryTagging in the Causeway Coast
Graham Thompson, CEO of <u>Causeway Coast and Glens Heritage Trust</u>

> *CCGHT is a partner in the EU NPA <u>Northword/StoryTagging</u> Project with organisations in Russia, Scotland, Northern Ireland, Finland and Sweden. This Project uses modern technologies and a wide range of media to promote micro-business in the Causeway Coast and Glens area in Northern Ireland through the medium of Story Telling. Graham will explain how this fits in to the wider aim of promoting sustainable tourism in the area with heritage at its core.*

SESSION 5: GAME-BASED APPROACH TO HERITAGE (VHV-107)

> Games and gamification are used more and more within schools and museums and can be a powerful way of communicating cultural heritage. New generations continue to play as adults and today we like to step into magic circles that takes us away from the real reality. In this session we present and discuss how to make gamified experience and why the play is so important as a informative tool.

Digital Artefacts, Engagement and The West Highland 100 [virtual]
Vanessa Martin, Curator at <u>West Highland Museum</u>

> *The West Highland Museum is 100 years old this year and as part of the celebrations we have created the West Highland 100. These are 100 objects that represent highland life. From the iron Age, through the Jacobites and the Victorian era they represent what is distinct and universal about highland life through the ages. We have made virtual tours and done 3D digitisation, developed a digital repository and website at <u>whm100.org</u>, organised live social media events, used game technology to make digital galleries and game engines to do virtual time travel. Through these activities we are engaging our communities and preserving our heritage.*

Fighting The Last Battle of the Vikings Through Virtual Reality
Áskell Heiðar Ásgeirsson, Managing Director of <u>1238 The Battle of Iceland</u>

> *1238 The Battle of Iceland is a museum which uses virtual reality VR and augmented reality AR to show and share the history of the Icelandic Civil War in the 1200´s, period known as Sturlungaöld in Iceland. Our guests can step back in time and take active part in one of the biggest battles of this time in interactive VR. The company is also a progressive innovation and technology company that focuses on digital storytelling through VR and AR. After opening our museum in 2019 we are actively looking for cooperation with museums, historical sites and others interested in using technology to bring old stories to life.*

Back to the Future
Arnar Valdimarsson, Senior Creative Producer at <u>Parity Games</u>

> *While building a computer game based on 17th century Iceland and folklore, we have been able to use the latest advancements in Photogrammetry technology, scanning actual Icelandic antiques and implementing them into our gameplay and stories. We have been fortunate with great collaboration from Icelandic museums which have given us access to their impressive collection of historical artefacts. We believe by doing this we not only fast-track our asset production but also give each item a real back story and new life in our game, bringing the past back into the future.*

Location-Based Storytelling and Gamification Apps with Locatify
Sif Baldursdóttir, Sales and Marketing Director, Locatify

Locatify is an Icelandic software development company originally founded with the goal of harnessing the latest mobile technology to share local stories with travellers. The company specialises in location-based storytelling and gamification apps. Games are created online via the easy to use Locatify Creator CMS & published to TurfHunt app or various customer apps, which use maps & location to trigger media content and challenges on location. TurfHunt is a treasure hunt style quiz game app, where players play competitive informative games as they learn about the environment and their heritage. Locatify offers the tools to create and play games and is constantly approving them as its customers need different approaches to make their sites and games special.

The company was a technical solution partner in CINE, a collaborative digital heritage project with partners from Norway, Iceland, Ireland, Northern Ireland and Scotland. The project was funded by the Northern and Arctic Periphery Programme and aimed to transform people's experiences of outdoor heritage sites through technology. Locatify's contributions included location-based content for heritage sites, trialling ultra-wideband for precise positioning of a 3D model in mixed reality at Skriðuklaustur, an Augmented Reality treasure hunt game, and gamifying the learning experience for heritage sites with location-based app content.

Garden of Choices - Role Playing Game in VR
Ásta Olga Magnúsdóttir, Leader in Climate Change Education, Gagarin

Garden of Choices is an educational role playing game about climate change in virtual reality. The game is intended for youth to learn about climate change and make choices about climate actions. They must decide which future decisions would be best for people, planet and economy and each decision the group collectively makes will impact their score in the game and facilitate lively debate about climate change actions. In this talk we will give the behind the scenes of the design process of making the game as well as share findings from ongoing research about the user experiences. Garden of Choices and is our first product in the Astrid suite which is an ongoing R&D project about climate change education.

SESSION 6:   STAÐA STAFRÆNS MENNINGARARFS Á ÍSLANDI (in Icelandic)   (VHV-108)

Stafræn þróun er í örum vexti og mikilvægt að menningararfurinn sitji ekki eftir og aðgengi að honum verði tryggt gegnum netheima og gagnabanka. Heimsfaraldurinn sýndi fram á mikilvægi þess að söfn og aðrar menningarstofnanir tækju á móti gestum rafrænt og veittu aðgengi að stafrænum endurgerðum og afritum. Þrívíðar myndmælingar og skannanir, stafrænir tvíburar, sýndarveruleiki, viðaukinn veruleiki og blandaður veruleiki eru nýjungar sem hjálpa til við skrásetningu og miðlun menningararfsins. Í þessari málstofu veltum við fyrir okkur stöðunni á þessu sviði hérlendis og möguleikunum sem framtíðin boðar.

MSHL – nýr vettvangur fyrir samstarf á sviði stafræna hugvísinda og lista
Eiríkur Smári Sigurðarson, rannsóknarstjóri á Hugvísindasviði HÍ og **María Ásdís Stefáns Berndsen**, verkefnisstjóri MSHL og aðjúnkt í menningarmiðlun við HÍ

Í erindinu verður sagt frá Miðstöð stafrænna hugvísinda og lista (MSHL), sem er nýr samstarfsvettvangur ellefu stofnana um uppbyggingu, vistun, samráð um þróun og aðgengi að stafrænum gagnabönkum í hugvísindum og listum, og fyrir rannsóknir sem byggja á þessum gagnabönkum. Jafnframt verður sagt frá þeim verkefnum sem þegar eru í gangi á vettvangi Miðstöðvarinnar.

Á krossgötum stafræns menningararfs
Sigurjón Baldur Hafsteinsson, prófessor við [Háskóla Íslands](#)

> *Í þessu erindi verður hugað að stöðu stafrænnar miðlunar og varðveislu menningararfs á Íslandi, með sérstakri áherslu á söfn. Söfn hafa um árabil innleitt stafræna tækni í starfsemi sína með það að markmiði að stuðla að varðveislu menningar og búa í haginn fyrir rannsóknir, menntun og miðlun. Menningar-sögulegi gagnagrunnurinn Sarpur er ein birtingarmynd þeirrar vinnu, en að auki eru stafrænar úrfærslur safna að finna í sýningarrýmum þeirra. Covid-19 heimsfaraldurinn setti þessa vinnu safna í nýtt samhengi, en hann var yfirgripsmikill prófsteinn á stöðu stafrænnar vinnu safna hingað til. Í erindinu verður fjallað um þessa stöðu og þennan prófstein sem heimsfaraldurinn bauð upp á og hugað sérstaklega að því veganesti sem hann getur fært stafrænni vinnu safna í framtíðinni.*

Stafræn vegferð safnkosts
Hrönn Konráðsdóttir, sérfræðingur fornminja, [Þjóðminjasafni Íslands](#)

> *Í hröðum heimi stafrænnar byltingar stöndum við stöðugt á krossgötum og það er ekki alltaf einfalt að velja hvert skal halda. Hafa þarf í huga hvaða lausnir henta, hvernig hægt er að innleiða þær og hvaða lausnir auðvelda vinnu og nýtast best. Safnkostur Þjóðminjasafns Íslands hefur verið á stafrænni vegferð allt síðan fyrstu tölvurnar komu á safnið, þar sem stefnan hefur verið að miðla safneigninni til allra. Með hratt vaxandi safneign, sérstaklega ljósmynda og forngripa er það ekki auðvelt verk. Í fyrirlestrinum verður rætt um þessa vegferð safnsins, allt frá ofanverðum dögum Sarps og þá stöðugu vinnu sem fer í að koma vaxandi safnkosti á stafrænt form. Þá verður rætt um nýlegri lausnir eins og þrívíddarskanna og hvernig slíkar lausnir nýtast til að varðveita og miðla safnkostinum. Sérstaklega verður rætt um þrívíddarlausnir fyrir mannabein þar sem hægt er að deila safnkosti og lágmarka rask á sama tíma.*

Úr viðjum vanans
Ingvar Högni Ragnarsson, stafræn miðlun hjá þjónustu- og þróunarsviði Hafnarfjarðar

> *Hvað er stafræn vegferð? Er þetta eitthvað sem við þurfum að velta fyrir okkur? Skiptir þetta einhverju máli fyrir menningu okkar eða menningararf? Í þessum fyrirlestri verður fjallað um grunnhugtök stafrænnar vegferðar og grunnsviðin sem hún tekst á við. Fræðsla og efling stafrænnar hæfni er lykilþáttur í því að takast á við örar tæknibreytingar og auknar kröfur notenda um aðgengi að afþreyingu og menningararfi í gegnum stafrænar lausnir. Grunnþekking á vegferðinni og notandamiðaðri nálgun getur komið að gagni við margar áskoranir sem við stöndum frammi fyrir. Hvort sem það er tungumálið, varðveisla eða miðlun á menningararfi. Stafræn vegferð er eitthvað sem við ættum að taka til skoðunar því hún er grunnurinn að snjallvæðingu framtíðarinnar og menningin og menningararfur okkar má ekki verða skilin eftir í þeirri vegferð.*
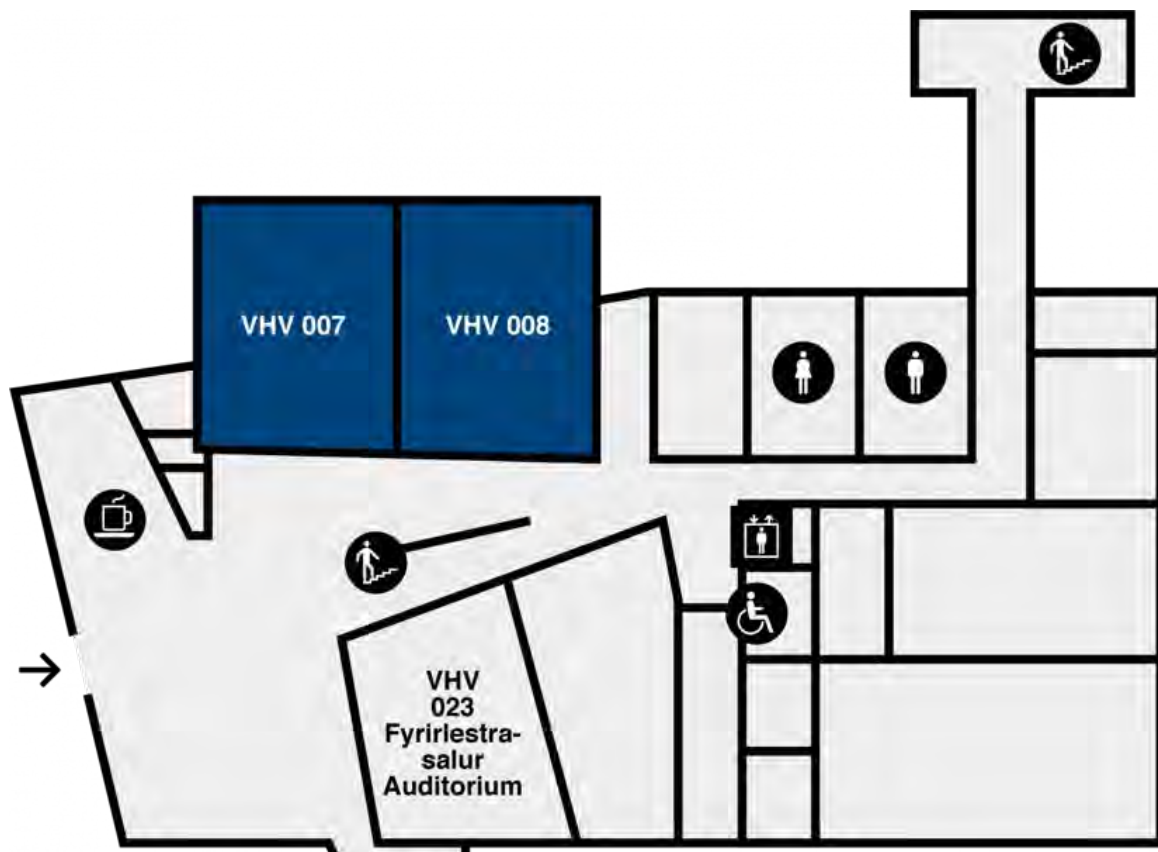
15:00 - 15:30   COFFEE BREAK

15:30 - 16:00   CLOSING REMARKS
Auðarsalur (Auditorium) in Veröld (VHV-023)
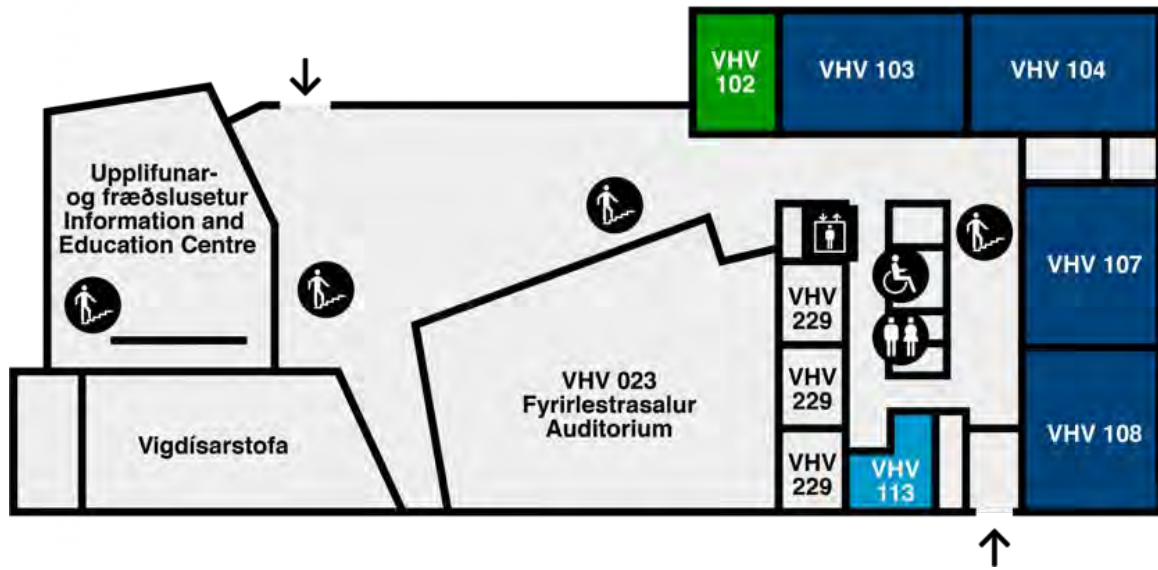
Veröld - House of Vigdís, ground floor

Veröld - House of Vigdís, basement