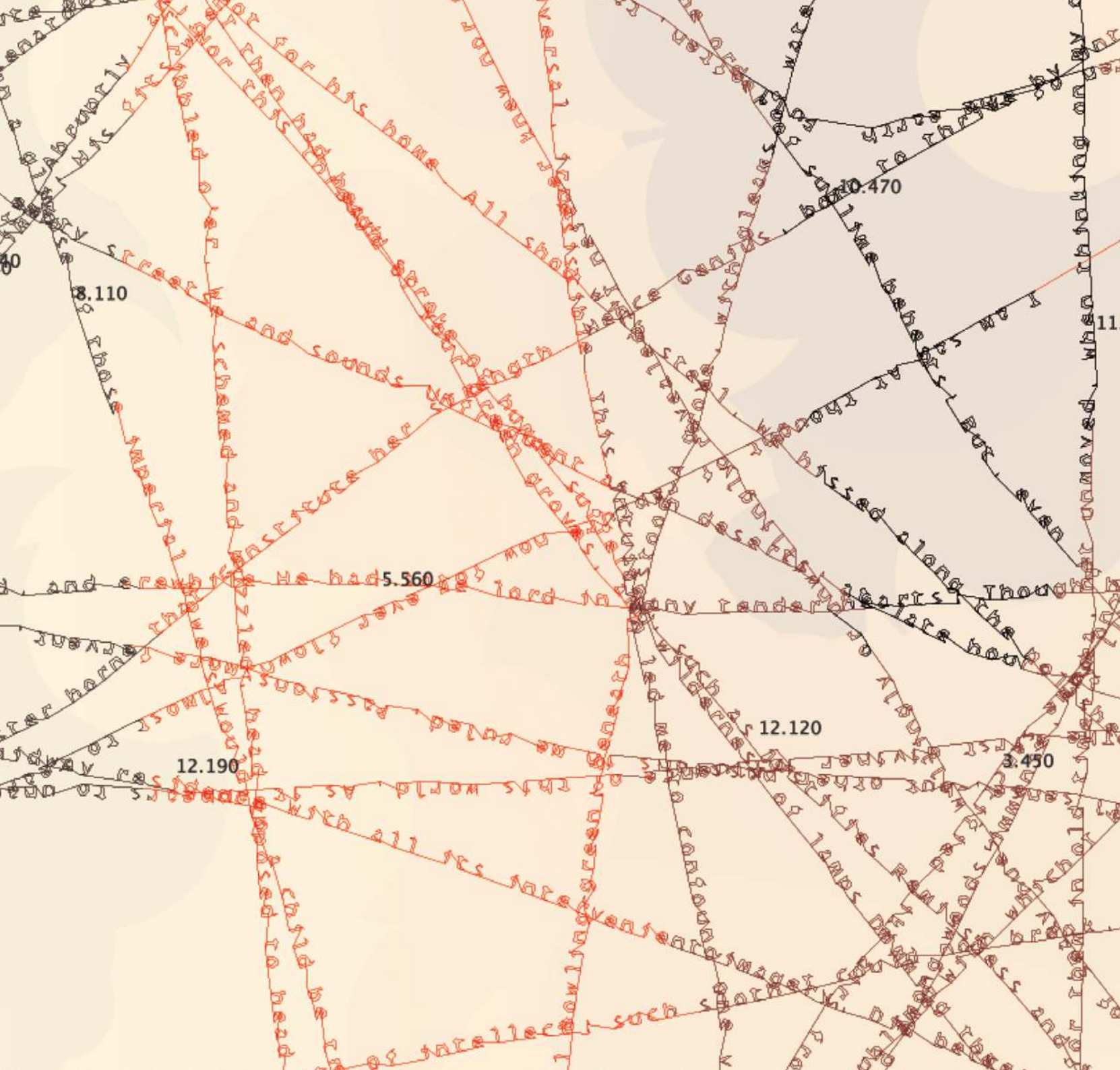




LITERARY LANDSCAPES





Type of output:
Collection of
Creative work
and Digital
Artefacts

by
Andrew
Richardson

Cover:
Mapping The Prelude,
Wordsworth Museum, Grasmere.
The text of Wordsworth's poem
dynamically rendered onto the
landscape of Grasmere.
Image credit: Andrew Richardson

Left:
Details of Walking Map
Visualisation of The Prelude.
Image credit: Andrew Richardson

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SUMMARY

Literary Landscapes is an extended practice-based research project, involving a series of creative collaborations with literary and digital humanities academics. The investigation explored the use of creative computational code-based methods for generating literary maps and visualisations from source texts, which open up new ways for expert and non-expert audiences to engage with the spatial representations of literary texts.

The *Literary Landscapes* project applied a multidisciplinary approach, involving academics from interaction design, the digital humanities and literary studies from Northumbria University, Lancaster University, University of Edinburgh, UCL and MMU to explore and examine the use of creative digital, interactive methods to address the issues around the visual representation of spatial qualities within a range of literary texts.

A series of multi-disciplinary practice-based projects were developed by Richardson to explore the use of creative-coding methods which examine a range of ways for visualising literary data sets combined with other, internal and external, data sources. The enquiry generated a range of novel interactive 2D and 3D digital visualisations directly from source texts – creating environments which provided new ways of seeing, reading and encountering the structural and spatial qualities of literary texts.

The research was supported by the Arts Council, Wordsworth Trust and AHRC. Project outcomes were developed for a range of audiences and have been disseminated across a range of public-facing exhibitions, academic seminars and conferences. Initial outcomes were exhibited as part of the ‘*Walking Poets*’ exhibition at Wordsworth Trust and Kakimori Bunko, Japan (2014/15). Subsequent outcomes have been presented at IEEE VISAP conference (2019) and at SIG events at Digital Humanities conference (2019), and the British Library (2020).

INTRODUCTION

Literary Landscapes was initially developed from a commissioned piece of work for the 'Walking Poets' exhibition at the Wordsworth Trust (2014), a collaborative research project, with artists and literary scholars from the Wordsworth Centre to explore creative visual ways of connecting the words and the landscape of the poet - interactively mapping the text of *The Prelude*. The creative coding methods developed and applied to the initial research have led to a series of extended cross-disciplinary research collaborations with literary and digital humanities researchers, examining innovative digital visualisation methods of mapping literary texts, and has been supported by an AHRC award (Grant Ref: AH/P00895X/1) *Creating a Chronotopic Ground for the Mapping of Literary Texts: Innovative Data Visualisation and Spatial Interpretation in the Digital Medium* (£680K Richardson, Co-I).



Top right:
Interactive Visualisation of The Prelude
from the Wordsworth Museum exhibition:
<https://vimeo.com/96103764>.

Right:
Animated 'Fly Through' of the poem as landscape:
<https://vimeo.com/97609373>.



TIMELINE

2014	2016	2017	2019	2020
<p>Walking Poets Symposium. Jan 2014. Invited to be part of multi-disciplinary research team to explore creative responses to the Wordsworth archive.</p> <p>Clayton, E., Collier, M., Ling, M. and Richardson, A. (2014) <i>Walking Poets Symposium</i>. Dove Cottage, Grasmere.</p> <p>Walking Poets Exhibition Wordsworth Gallery (2014)</p> <p>Richardson, A. (2014) <i>Mapping The Prelude</i> [Interactive 3D Visualisation]. The Wordsworth Museum, Grasmere.</p>	<p>Wordsworth and Basho: Walking Poets Exhibition. Kakimori Bunko, Itami, Japan.</p> <p>Richardson, A. (2016) <i>Culture Mapping: Creative Digital Approaches</i>. Media, Communication and Cultural Studies Association (MeCCSA 2016). Canterbury.</p> <p>Richardson, A. (2016) <i>Data-Driven Graphic Design. Creative Coding for Visual Communication</i>. Bloomsbury. London.</p> <p>Seven Ways Up. Research Group Event (S, Bushell, S, Bainbridge, B, Thompson) Assent of Snowdon and group analysis of documents.</p> <p>Seven Ways Up Exhibition Wordsworth Gallery [Exhibition]</p> <p>Richardson, A., Pannells, I., Bushell, S. and Bainbridge S. (2016) <i>Seven Ways Up: 3D Interactive Visualisation of the Romantic Assents of Snowdon</i>. Wordsworth Trust, Grasmere.</p>	<p>AHRC Award Creating a Chronotopic Ground for the Mapping of Literary Texts. <i>An inter-disciplinary AHRC research project exploring applications of 3D and gaming environments for the mapping and visualisation of literary texts</i>. AHRC (£680K).</p> <p>Chronotopic Grounds Research Symposium. Analysis and review of research outcomes with external collaborators and partners from British Library. Sept 2018.</p>	<p>Richardson, A 2019, 'Creative Experiments into the Spatial Visualisation of Literary Texts' <i>Digital Humanities, Utrecht</i>.</p> <p>Richardson, A 2019, 'Mapping The Prelude: A Visualisation of Wordsworth's Poetry' <i>IEEE VIS 2019, Vancouver, Canada</i>.</p>	<p>Mapping Texts research symposium: Lisbon, Jan 2020.</p> <p>Richardson, A, 2020, <i>The Application of Creative Coding Methods for the Development of Interactive 3D Visualisations of Literary Texts</i>. Mapping Time, Mapping Space, Mapping Text, Conference, British Library, Sept 2020.</p>

RESEARCH CHALLENGE

The project takes a visually experimental approach towards the visualisation of literary data sources, developing a creative coding practice as a means of generating new encounters with, and representations of, texts in a variety of formats. In so doing, the work challenges and brings a fresh perspective to the visual representations and data visualisations of literary texts and then feeds into contemporary discussions within the growing fields of the Data Visualisation and Digital Humanities.

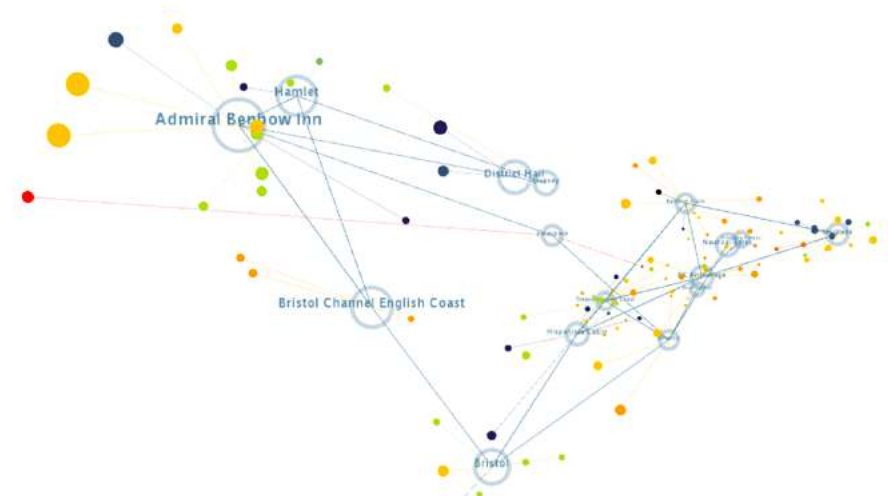
Aims:

- Apply and develop creative computational methods to generatively produce digital environments from source text as data.
- Develop interactive tools and environments which visualise the internal and external spatial structures and relationships of literary texts.
- Create innovative visually rich digital experiences and encounters of literary texts across a range of digital environments for a range of expert and non-expert audiences.



Top right:
3D rendering of 'To The Lighthouse'
using the CLAYE data source.

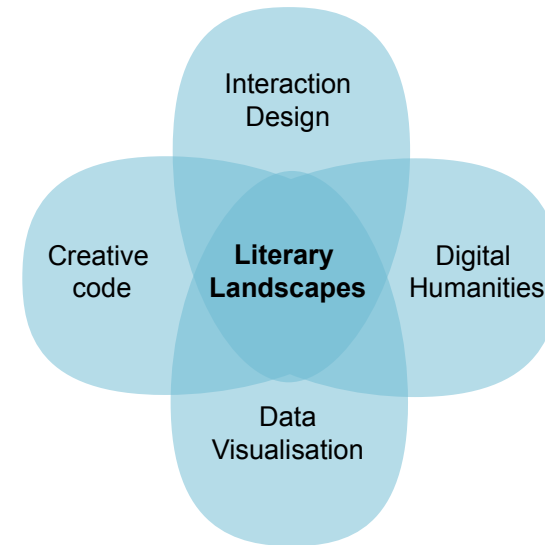
Right:
Interactive 3D rendering of
the structure of 'To The Lighthouse'
<https://vimeo.com/460739542>.



CONTEXT

The research represents a continuation of Richardson's ongoing enquiry into the use of code as a form of creative practice, i.e. working within a creative code context (designer-as-programmer), in which computational methods are used as ways of understanding and manipulating the 'material' of the digital environment (Cannaerts, C. 2016). The practice is situated within the field of Interaction Design, with particular reference to the field's data-enriched Graphics and Generative Typographic practice (Pereira et al. 2019): exploring computational processes for the dynamic and interactive representations of typographical forms (Ahn et al. 2016) and generative text-based environments (Muller 2006).

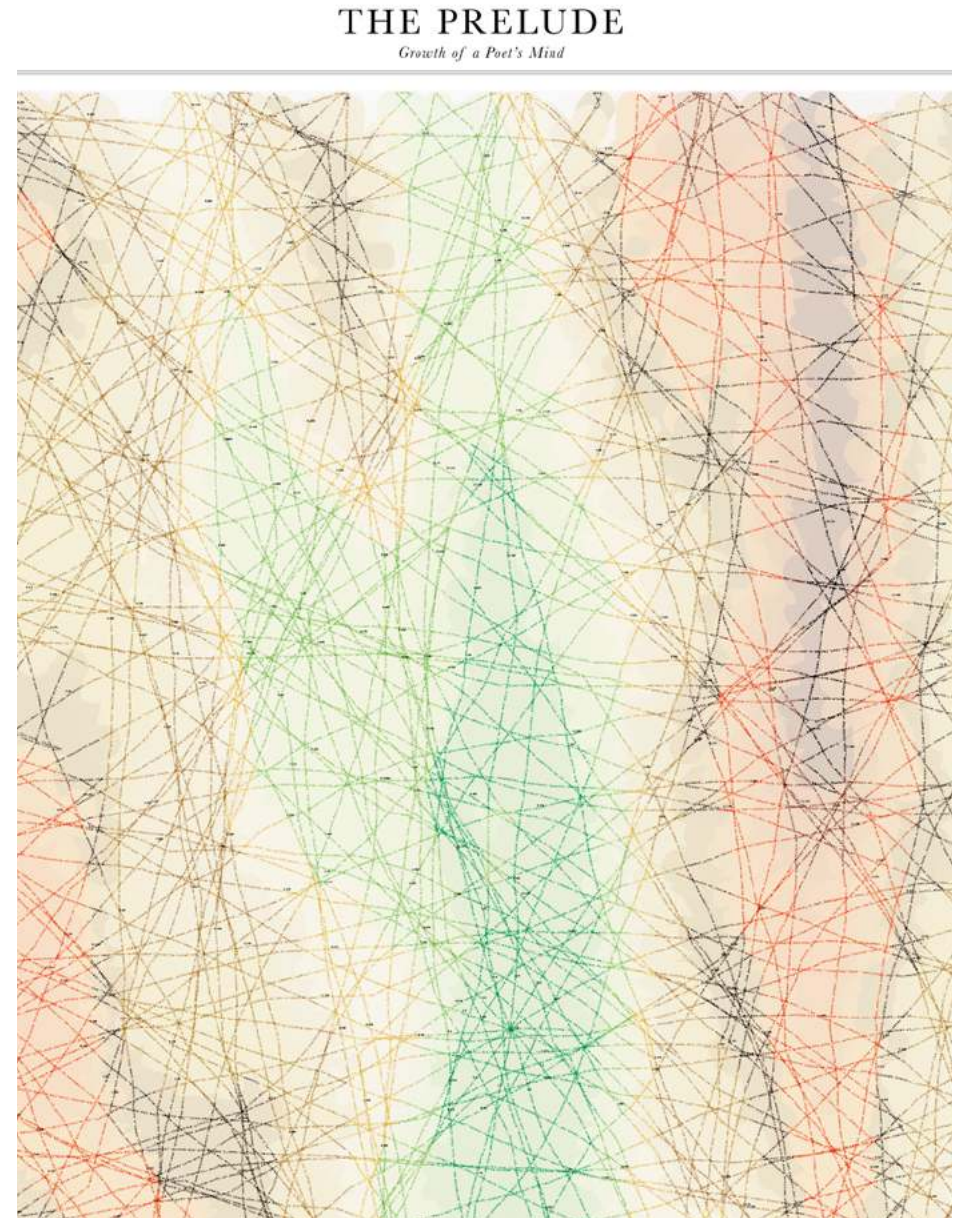
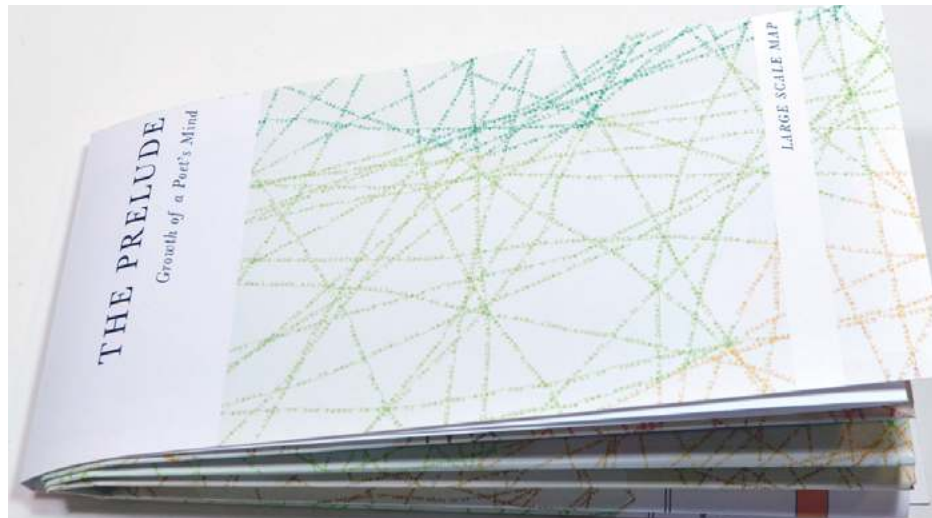
During the course of this investigation, the research has become increasingly situated within the inter-disciplinary field of speculative Data Visualisation for the Digital Humanities (Drucker, 2011), specifically within emerging areas of research which are concerned with the creation of novel interactive environments as a means of exploring the representation of cultural data sets (Boyd Davis 2015) in 2D and 3D contexts. The research, therefore speaks to the so-called 'second wave' of Digital Humanities a 'qualitative, interpretive, experiential, emotive, generative' (Schnapp and Presner 2010) approach to the subject.



“What is needed is not a set of applications to display humanities “data”, but a new approach that uses humanities principles... centred in the experiential, subjective conditions of interpretation”
(Drucker - 2011)

By using creative computational practice as part of a 'Research through Design' methodology, the project engages with a growing field of research in which Data Visualisation intersects with the Digital Humanities and Literary Studies, an area which increasingly recognises the need for the development of playful computational prototypes to be built (Glinka et al. 2017) as part of a speculative process for creating visualisations which challenge traditional graphical representations of data (time, space and viewpoint) within literary and cultural data sets (Drucker 2011). These data 'sandcastles' (Hinrichs et al. 2017) act as important aesthetic provocations which enable mediated engagement with cultural and literary data to foster greater scope for exploration, interpretation and understanding (McCurdy, 2015).

Below and right:
Printed 'Walking Map' Visualisation of
The Prelude mapped as a landscape.



METHODS AND PROCESSES

The investigation took the form of an iterative and collaborative process which employed a practice-led, 'Research through Design' (Frayling, 1994) process of data gathering, creative and technical exploration, and feedback. Digital prototypes ('sandcastles') were created as speculative aesthetic provocations (Hinrichs et al. 2017) and used as interim outcomes which helped inform and direct subsequent activities. By engaging in a creative-practice mode of enquiry, Richardson has developed a series of novel interactive textual environments which re-present the literal and metaphorical 'landscape' of texts, and create original environments and metaphors for the visualisation of literary work. The process of collaborative enquiry has allowed the research to develop a conceptual use of 'landscape' as visual metaphor – and to develop new visual, interactive topological environments which describe the spatial, temporal structural elements and connections within literary texts as a kind of new 'topology'.

Once when to my night I with a youth / we
5th Book I read
~~Once but I must frame this several~~
~~years~~
~~accomplish'd to reach this incident~~
~~travelling~~ ~~the region on N. Wales~~
We left Northellent's huts at ~~last~~ ^{last} time
XIV
And westward took one way to see the ~~top~~ ^{the} ~~peak~~ ^{peak}
Rise from the top of Snowdon ~~the~~ ^{the} ~~mountain~~ ^{mountain}
The Cottage at the mountain's foot we ~~found~~ ^{found}
~~found~~ the Shepherd, who by ancient right
Alone in the ~~mountain~~ ^{mountain} ~~was~~ ^{was} ~~found~~ ^{found}
And after short repose we sallied forth
It was a summers night close warm with
White duff & eglery with a dripping mist
~~at night~~ ^{at night} ~~the~~ ^{the} ~~clouds~~ ^{clouds} ~~that~~ ^{that} ~~covered~~ ^{covered} ~~all~~ ^{all} ~~the~~ ^{the} ~~sky~~ ^{sky}
Half threatening storm & rain. But on we went
Leachuck'd being young & blithe & having faith
In our tried Pilot little could we see
~~at night~~ ^{at night} ~~the~~ ^{the} ~~clouds~~ ^{clouds} ~~in~~ ⁱⁿ ~~every~~ ^{every} ~~side~~ ^{side} ~~with~~ ^{with} ~~fog~~ ^{fog} ~~&~~ [&] ~~damp~~ ^{damp}
And after ordinary Travellers' habit
With the old Shepherd silently we sunk
Each into commerce with his private thought
Thus did we breast the ascent & by myself
Was nothing either seen or heard the while
That took me from my musing save that
Once

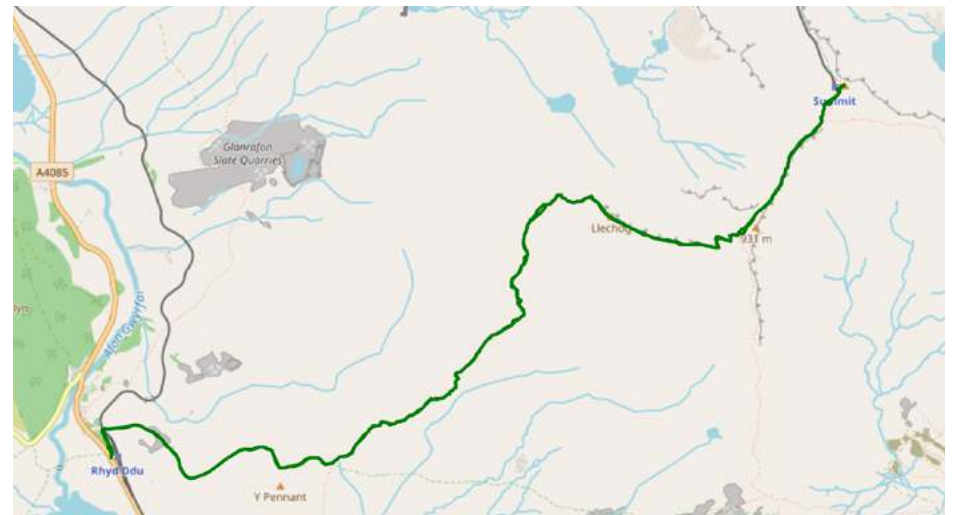
Right:
William Wordsworth Manuscript 'MS W' Early draft of the
Snowdon ascent (1804) by permission: *The Wordsworth Trust*.

Data Gathering:

Textual and spatial data, both digital and non-digital, was gathered and aggregated into the project throughout the lifespan of the investigation. Topology data (GIS, GPS) was collected and extracted from open online and offline sources. Online mapping resources (Google and OpenStreet Map) were used to acquire topology data, and physical route data (GPX) was collected by research collaborators who traced Wordsworth's footsteps from his poetic account of his ascent of Snowdon. Text data was obtained directly from online sources (<https://www.gutenberg.org>) as well as being generated via analysis of original manuscripts from the Wordsworth Trust archive. Marked up XML transcriptions of manuscripts were generated from archive documents to identify annotations and changes made within the manuscripts – thereby showing the 'creative pathways' of the writer during his compositional journey. A bespoke XML schema the 'Comparative Literaryscape Analysis Encoding' (CLAYE) was developed as part of the AHRC Chronotopic Grounds project. This was used to identify specific literary spaces (chronotypes) and connections within a range of texts which also became a key data source for the later pieces of work.



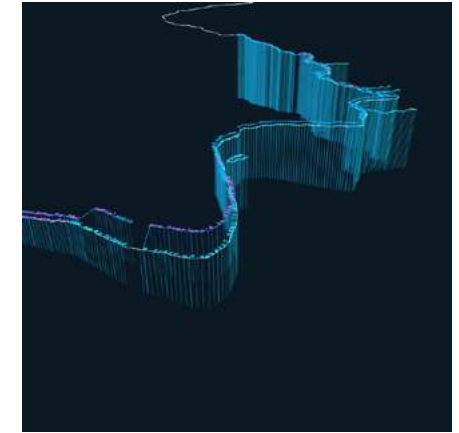
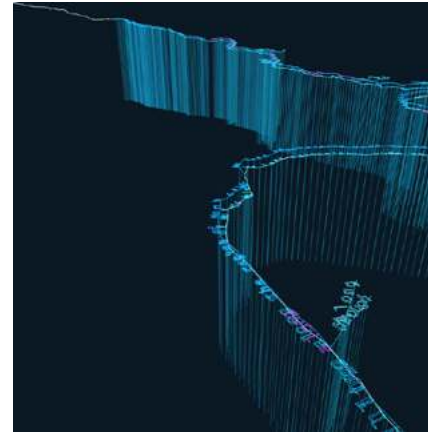
Top right:
Reading Wordsworth with research
collaborators during a Snowdon climb.



Right:
Route map of ascent of Snowdon (GPX data).

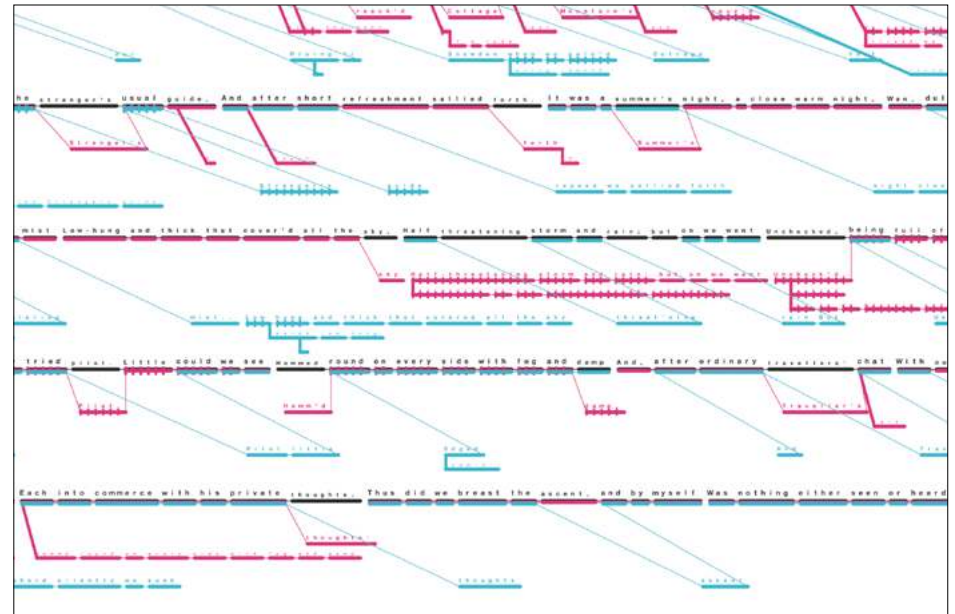
Creative and Technical Development:

A creative coding approach was used to aggregate text and spatial data into visual forms. The Processing coding framework was used as the core environment for creative development as a relatively lightweight environment to develop interactive, speculative ‘sketches’ and prototypes and demonstrate concepts. The Unity game engine was explored as a way to translate the environments into VR frameworks. The process included some use of external Processing libraries for specific functions: i.e. XML parsing and splitting fonts into individual points (<http://www.ricardmarxer.com/geomerative/>). The Processing environment afforded the creative freedom, away from pre-designed traditional data visualisation frameworks to build and combine a range of speculative and novel models, representations and environments, and afforded a greater scope of visual options and outputs (including 2D and 3D, interactive and print). Established data visualisation concepts, e.g. force-directed graphs, (Fruchterman, 1991) were combined and modified with novel methods and visualisation environments.



Top right:
Visualisation of Wordsworth’s Snowdon poem mapped onto the route of his climb. Edits and changes during the composition of the poem are represented as ‘diversions’ from the main path.

Right:
Visualisation of the additions and changes made to a poem during its composition. Data translated from Wordsworth’s notebook into XML before visualising.



Prototype Testing and Feedback:

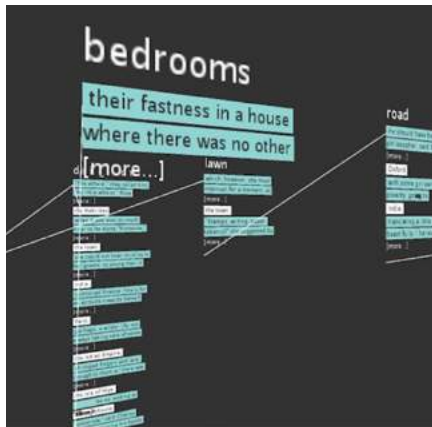
Throughout the process, sample prototypes were created and tested. Research forums and symposia were used as a basis for demonstrating work to the wider research community and gathering important reaction and feedback. These included regular feedback sessions with the research team as well as larger symposia and forums for wider reaction. Discussions around the visual language used in the prototypes to 'map' the spatial and temporal qualities of the texts helped form an important part of the development process -informing a shift in the use of 'landscape' from being a *literal* into a *conceptual* base, and opening up new ways of expressing and exploring textual spaces and connections into new visual environments.

Below:

Interactive visualisations of the narrative structure of 'The Lighthouse' in 3D space. Data visualisations rendered from the CLAYE schema developed by literary scholars.

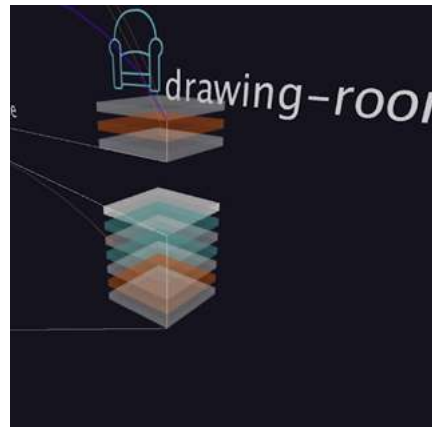
Screen recording:

<https://vimeo.com/484360231>



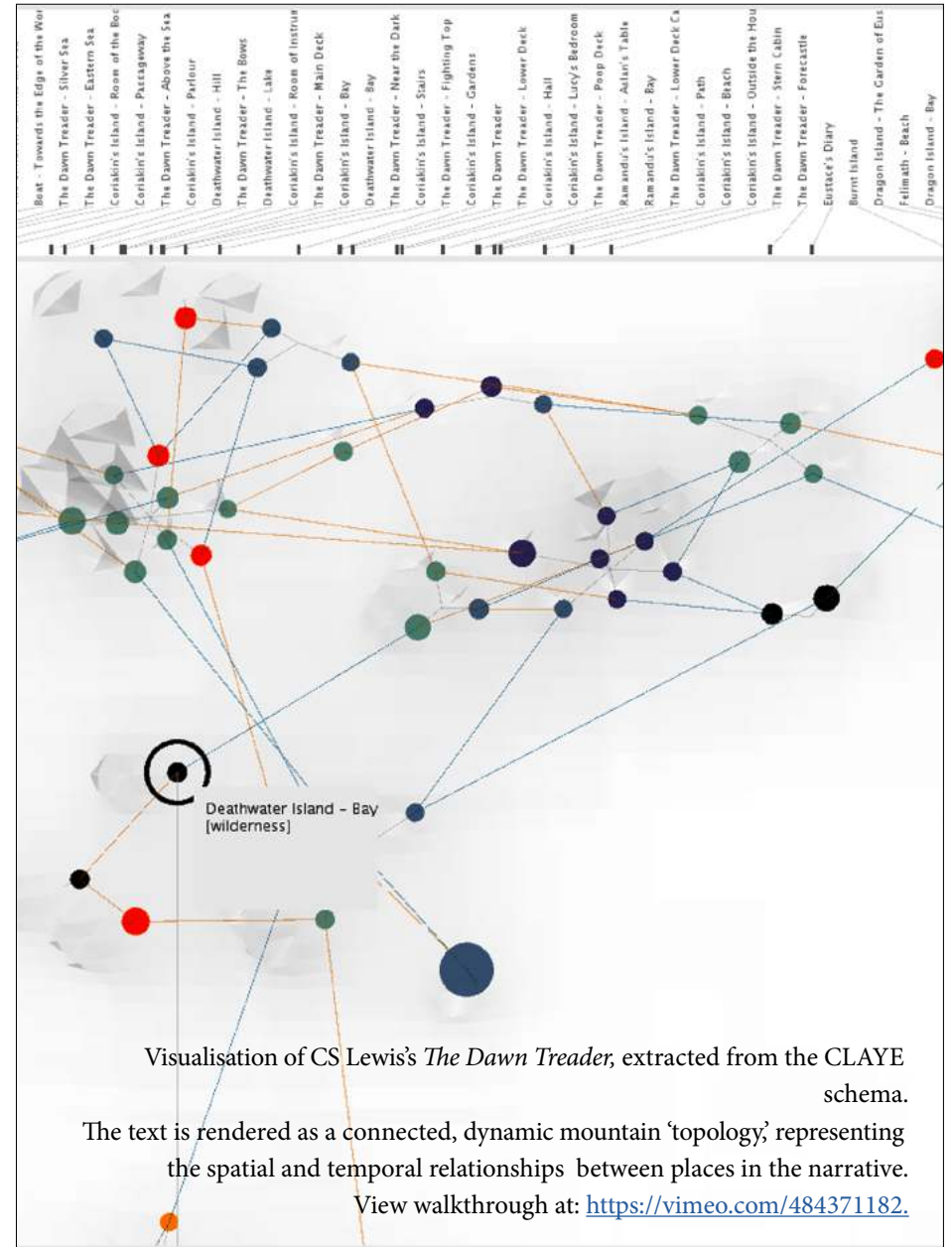
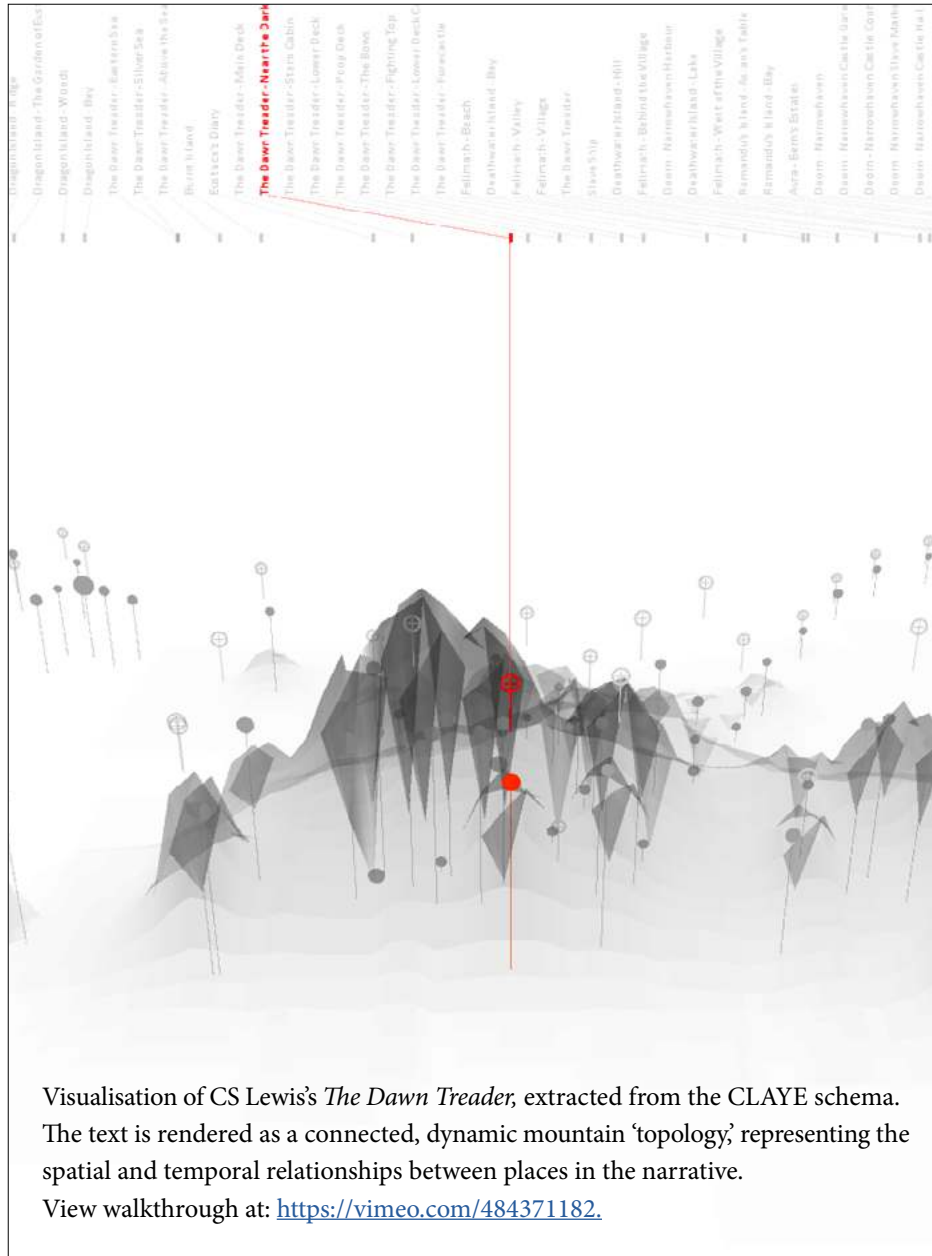
Screen recording:

<https://vimeo.com/484365601>



“It was interesting to create a visualization of the text that intrigues and draws the reader in, and rewards further understanding, creating dynamic tension between looking and reading, between the visual and the verbal ...It was extremely liberating to work in a collaborative and creative way, applying scholarly knowledge to new ways of responding to Wordsworth”

- Prof. Sally Bushell



DISSEMINATION

Outcomes from the research have been effectively shared at a number of different points throughout the investigation process in museum, exhibition and academic settings and to specialist, academic and non-academic audiences.

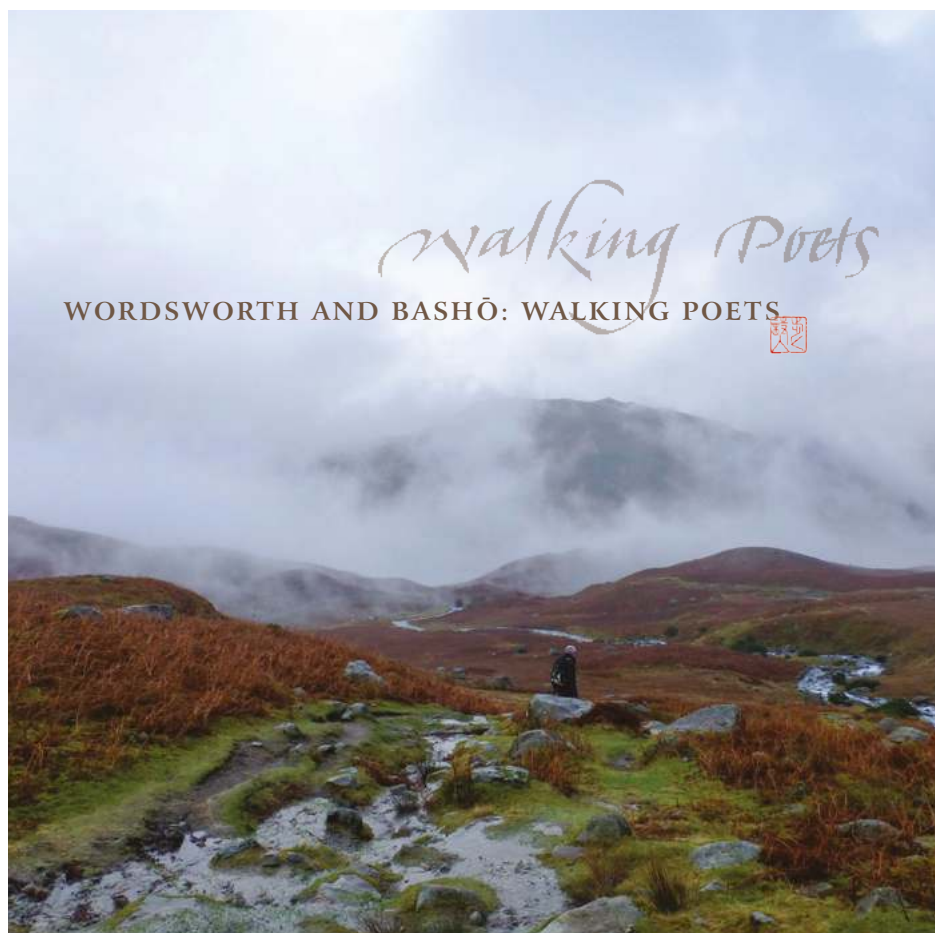
Below: Images of the Walking Poets Exhibition, Wordsworth Gallery (2014) and Itami Japan (2016).



Museum and public settings:

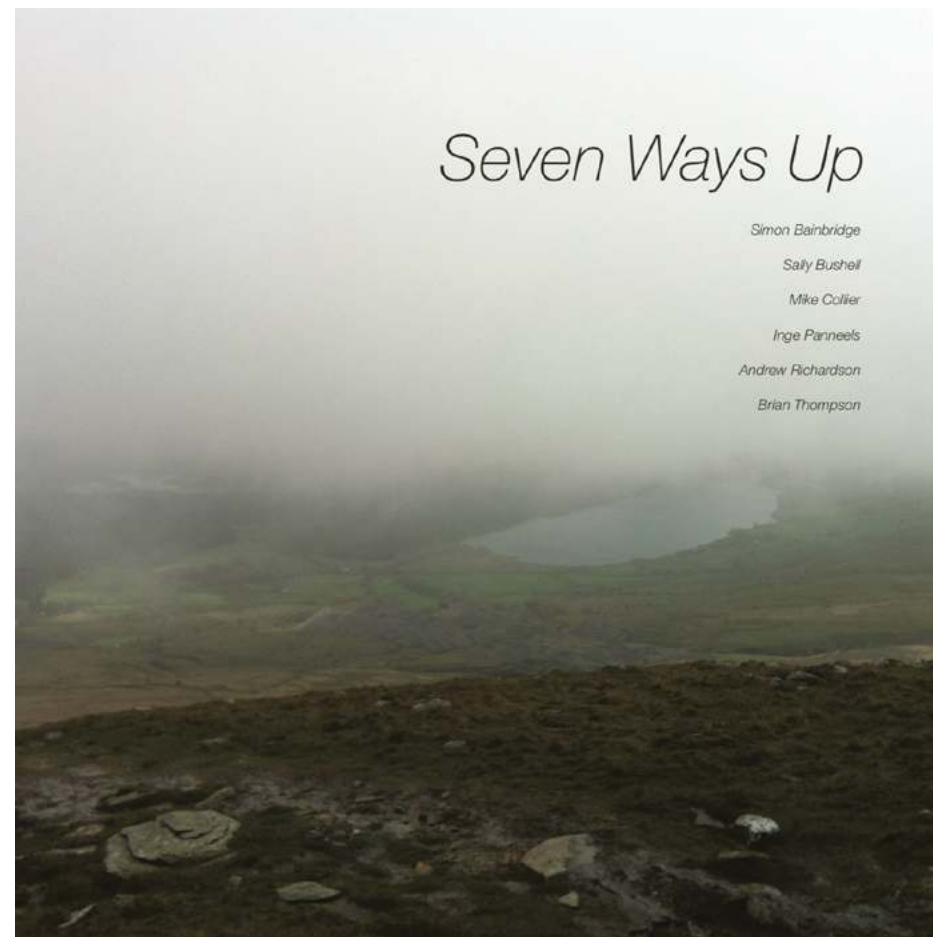
The initial outcomes of the research were shared in a six month long exhibition at the *Wordsworth and Basho: Walking Poets* exhibition at the Wordsworth Trust Gallery (2014), and in a month-long exhibition in Kakimori Bunko, Itami, Japan (2016). The overall visitor attendance figures for the Wordsworth exhibition was 33,000. Outputs were also disseminated in associated publications (Richardson, A. (2015) *In: Elder, J., Azuma, S. and Oishi, K. Wordsworth and Basho: Walking Poets.* University of Sunderland pp. 50-55).

Visitor responses to the work highlighted particularly positive reactions to the overall aesthetics of the map and the landscape, which revealed the sometimes previously unknown relationship that the poet had to the walked landscape around Grasmere. Other visitors expressed fascination with the ‘novelness’ of the immersive landscape which brought to life new and fresh perspectives of the poet. The Director of the Wordsworth Trust, Jeff Cowdon, specifically commented on the positive visitor reaction to the work, especially in the way that it helped to clarify the connection between the manuscripts inside museum to the landscape outside – one of the core aims of the museum - and something which the ‘brown manuscripts’ within the collection struggle to do. The exhibition also generated interest from specialist academic audiences and instigated follow-up research collaborations, the outcomes of which were shared at a public exhibition (*Seven Ways Up* 2016) at the Wordsworth Trust Gallery and used to form the basis of subsequent AHRC funded work.



Walking Poets Exhibition Catalogue

Richardson, A. (2015) In: Elder, J., Azuma, S. and Oishi, K. *Wordsworth and Bashō: Walking Poets*. University of Sunderland pp. 50-55.



Seven Ways Up Exhibition Catalogue

Richardson, A., Panneels, I., Bushell, S. and Bainbridge S. (2016) *Seven Ways Up: 3D Interactive Visualisation of the Romantic Ascents of Snowdon*. Wordsworth Trust, Grasmere.

Specialist research groups:

Outcomes generated from the AHRC funded collaborations have been disseminated amongst specialist research groups in emerging fields across Data Visualisation Digital and Spatial Humanities - contributing to wider conversations about the emergence and use of new speculative digital environments for literary data visualisation. Research outcomes have been shared as a paper 'Creative Experiments into the Spatial Visualisation of Literary Texts' presented at the Specialist Interest Group (SIG) for the Spatial Humanities at Digital Humanities, Utrecht, 2019. The novel approaches to combining spatial and textual data generated interesting feedback and has led to the development of a further AHRC Networking Grant submission with the NOVA Digital Humanities Lab, Lisbon

(<https://dhlab.fcsh.unl.pt/>). Research has also been presented at IEEE VIS 2019, Vancouver, Canada (<https://visap.net/media/Richardson-VISAP19.pdf>) a prestigious international Data Visualisation conference, and most recently at the Mapping Time Mapping Space conference at the British Museum, 2020 (<https://www.lancaster.ac.uk/chronotopic-cartographies/conference/>)*.

*although this was transferred online due to COVID.



Top right: IEEE VISAP 2019 Exhibition.

Right: IEEE VISAP 2019 Catalogue.

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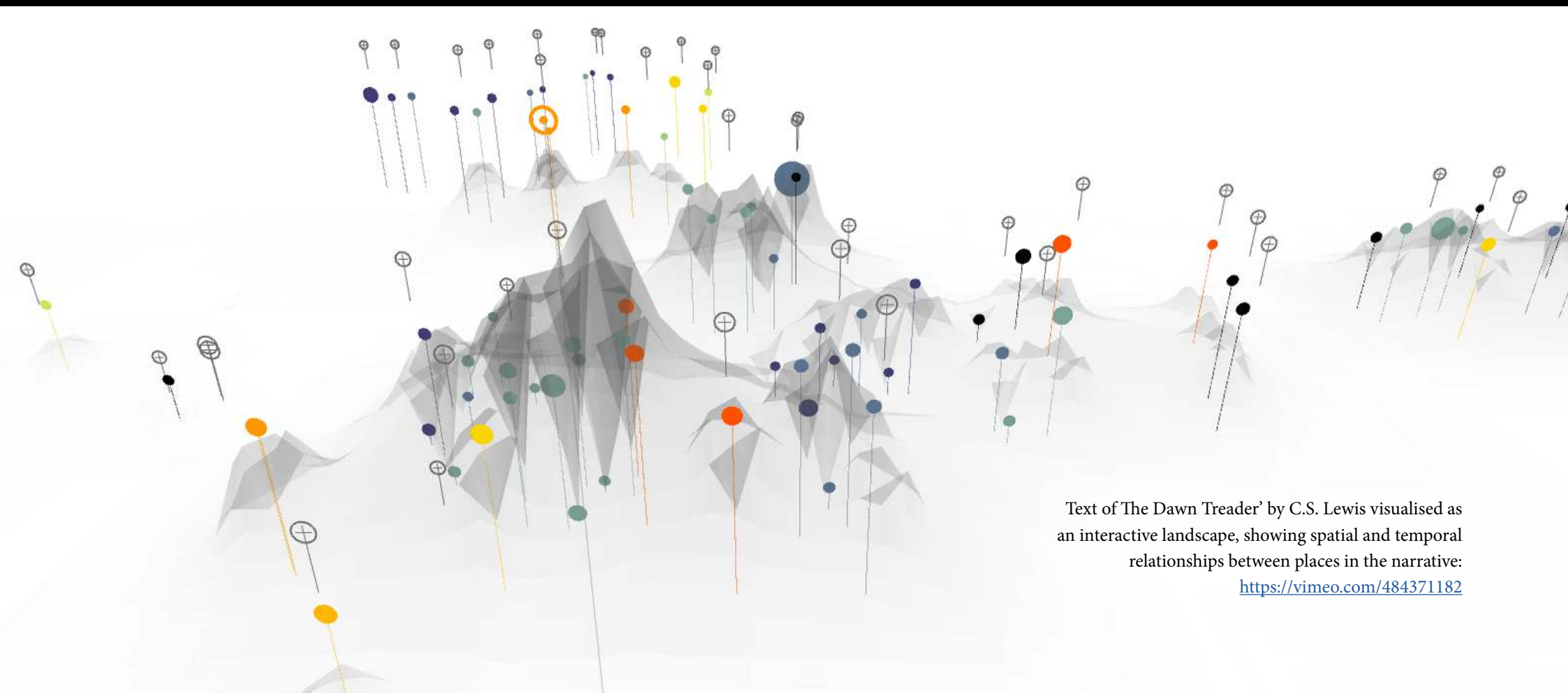
ACKNOWLEDGEMENTS

With special thanks to The Wordsworth Trust and particularly Jeff Cowdon for support and generosity, especially during the early stages of the research, as well as Mike Collier and the research team at W.A.L.K for helping to instigate and forge creative collaborations.

Thanks also to Sally Bushell at Lancaster University for expert advice and direction, and for enthusiasm for creative approaches which have been explored during the course of the work. Also thanks to Duncan Hay, for his advice and feedback.

Below:
Details of Walking Map
Visualisation of *The Prelude*.





Text of 'The Dawn Treader' by C.S. Lewis visualised as
an interactive landscape, showing spatial and temporal
relationships between places in the narrative:

<https://vimeo.com/484371182>