

# Drawing Spatial Movement

**movement  
drawing  
experimentation  
spatial perception  
design**

**Stevens, Sarah<sup>1</sup>; Erckrath, Charlotte<sup>2</sup>**

<sup>1</sup>School of Architecture, Technology and Engineering, University of Brighton, UK.  
0000-0001-5986-0089  
s.stevens2@brighton.ac.uk

<sup>2</sup>Bergen School of Architecture, Bergen, Norway.  
0000-0002-6054-3993  
charlotte@bas.org

Citation: Stevens, S.; Erckrath, C. (2022). "Drawing Spatial Movement " UOU scientific journal #03, 70-79.  
ISSN: 2697-1518. <https://doi.org/10.14198/UOU.2022.1.07>  
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Date of reception: 11/04/2022  
Date of acceptance: 11/05/2022



In a world increasingly understood in terms of process and flow the only constant could be said to be movement. Yet our modes of designing and drawing architecture can sometimes seem almost resolutely static. A desire to encase our movement within design is nothing new however. Eisenstein's analysis of the Acropolis reveals its presence as experienced in the 5th century, and the landscape gardens of the picturesque were designed to unfurl in advance of their promenading viewers. But if we are to engage our architecture in our unassailable entwinement with a world made of process we need new tools. We think through our drawings, but conventional techniques do not readily open up or enter into conversation around movement, process or our place in time. The vital role our drawing conventions play as exacting translators of design to construction demand precision communication that holds no place for ambiguity or change. Yet as incubators for speculative futures this language of representation offers little space or scope to engage time. Might we therefore identify new forms of canvas, new languages, within which to incubate design ambitions; complementary drawing techniques within which we might think through in the language of our world, movement? The Moving Through masters course at the Bergen School of Architecture began to ask these questions, opening up an exploration of what it means to move through space, unpicking the implications for design. Over the short course highly speculative experimental work began to pose potential steps forwards.

*"Yet life, Bergson insisted, is not contained in things. It is movement itself, wherein every organism emerges as a peculiar disturbance that interrupts the linear flow, binding it into the forms we see. So well does it feign immobility, however, that we are readily deceived into treating each as a thing rather than as a process, forgetting that the very permanence of its form is only the outline of a movement.' It would be wrong, then, to compare the living organism to an object, for 'the organism that lives is a thing that endures'. Like a growing root or fibre, it creates itself endlessly, trailing its history behind it as the past presses against the present"* Tim Ingold<sup>1</sup>

Bergson's position is increasingly echoed by scientific understanding, which reveals our world as a folded mercurial place of constant flux, a composite of events engaged in a continual performance. The notion that anything is static, quantum physicist Carlo Rovelli relates<sup>2</sup>, is merely an illusionary construct of our own problematic minds. A mountain is not a fixed object but a process of gradual change, as is the chair we sit on as we read this, or our very bodies; all are processes merely sheltered in fantasies of fixed form. We, the mountains, our chair and everything else we see are companions on a journey through time. We are all unfurling narratives built of past, present and constructed predicted futures. One might argue movement is the only constant. Designing for and with movement therefore appears fundamental to enable our designs to be woven into these flows. Yet our contemporary modes of designing and drawing can seem limited in their ability to discuss movement.

An ambition to encase our movement in design however is nothing new. One of the most notable cases of overt design for the moving subject is the landscape gardens of the

Picturesque of the 18th and early 19th centuries. As transport became more widely accessible, walking transitioned from the lowest form of locomotion into a luxury pastime and for first time became *"an end in itself"*.<sup>3</sup> The landscape became an extension of the parlour; a place for the promenade, to see and be seen. The Picturesque English landscape gardens of this period were precisely fashioned to operate at walking pace or at the speed of a carriage ride. Whole villages were relocated, lakes dug and woodland positioned so panoramas would unfurl in seamless timed sequences involving narratives to linger in the minds of fashionable visitors. Steenbergen and Reh<sup>4</sup> engaged in a process of drawn analysis of some of these landscapes in order to uncover and reclaim the design tools employed. Chasing these ambitions, however, also began to identify drawings tools capable of discussing movement, as these were fundamental to capturing these temporal landscapes.

Design for the moving subject also appears identifiable in the fifth century BC in the layout of the Acropolis. Sergei Eisenstein drew on Auguste Choisy's analysis as a jumping off point for his conjecture on parallels within the site to cinematic framing. Eisenstein read the site as a montage sequence of juxtaposing cinematic film shots, focused on four *"successive picturesque shots"*. He concluded: *"It is hard to imagine a stricter, more elegant, and more triumphant construct than this sequence."*<sup>5</sup> These shots, Eisenstein surmised, are embedded within a time framework that positions them relative to the pace of human movement. He notes the *"length of these montage sequences is entirely in step with the rhythm of the building itself: the distance from point to point is long, and the time taken to move from one to the other is of a length in keeping with solemnity."*<sup>6</sup> The very nature of our movement appears encased at

the heart of the design. Elements seem configured to emerge into view, posing to the viewer in the most advantageous way as they walk across the site. Obstruct, glimpse, reveal, conceal; a narrative of past and present allied with the constructed intrigue of a half glimpsed future.

The Acropolis is not unique, both Eisenstein and Tschumi note similar ideas of sequences at play in Catholic cathedrals and churches for example<sup>7</sup>. Tschumi discussed the stages of the cross as a sequences of pause points within a spatial construct<sup>8</sup>. Mies Van der Rohe's Barcelona Pavilion is another example he offers, noting two sequences, one for vision and one for bodily movement, offering the visitor a multitude of *"readings"*<sup>11</sup>. For him, sequences are all set within a *"time sequence"* and his discussion of this returns us to the allusion of the timed nature of the cinematic.

*... "all sequences are cumulative. Their 'frames' derive significance from juxtaposition. They establish memory – of the preceding frame, of the course of events. To experience and to follow an architectural sequence is to reflect upon events..."*<sup>9</sup>. He discusses *"transformational sequences [that] tend to rely on the use of devices, or rules of transformation, such as compression, rotation, insertion, and transference. They can also display particular sets of variations, multiplications, fusions, repetitions, inversions, substitutions, metamorphoses, anamorphoses, dissolutions"*<sup>10</sup>.

Such examples make allusions to the cinematic and the construction of stage sets engaged in preconceived, orchestrated sequences choreographing actors' movement. The clear parallels drawn to cinematic space in Eisenstein's writing are perhaps revealing? The human experience of movement through space seems understood to be equally shared by a camera, rather

than as entwined processes. An encompassing of what it means to move through space - in terms of our fuller perception of that experience - seems less engaged. When interrogated, its complexities and inherent indeterminacy emerge; border zones of perception, spatial vagueness. These design methods feel removed from the messy organic whole of our entwinement with place. Tim Ingold notes *"We perceive, in short, not from a fixed point but along what Gibson calls a 'path of observation', a continuous itinerary of movement (Gibson 1979: 195–197). But if perception is thus a function of movement, then what we perceive must, at least in part, depend on how we move."*<sup>12</sup> We are implicated bodily, our perception intimately interrelated with the very nature of our movement and the landscape we move through.

How might we therefore begin to engage these complexities of the moving subject? We must return to process. An architect, does not make buildings, Perez-Gomez states, the architect makes *"the mediating artifacts that make ...buildings possible"*<sup>13</sup>; i.e., the drawing, which Jonathan Hill describes as a *"transitional object"*<sup>14</sup>. The drawing is the world in which design emerges, we literally think through our drawings. The manner of drawing can therefore be highly influential. The form of our drawings, Hill writes, affects how we think and thereby what we do, whether consciously or not<sup>15</sup>. It is therefore vital, he continues, that these tools are appropriate for our aims<sup>16</sup>. Ingold points to the drawing as the natural tool for capturing the world as process; *"..the task of life is never finished, and that the world never ceases its worlding, does not mean that lives are half-completed or that the world we inhabit is but half-built.... It is rather a holism that is anti-compositional, fluid, processual and improvisatory. And its key descriptive practice is drawing."*<sup>17</sup> Yet architectural drawing conventions can appear

resolutely static, challenged in relation to process or movement through space and time. So why are they so apparently unhelpful?

Architectural drawings are not an end in themselves, their primary task one might argue is to precisely represent something beyond themselves. A key role is for them to act as a precision carrier of information for translation into material through construction. These drawings are not places to discuss ambiguity, indeterminacy or vagueness. As architects however we also use these drawing methods to house and nurture embryonic design, working through them to speculate on alternative potential futures. If those futures are to engage with process, movement, and time then such conventional drawings start to feel uncomfortable and restrictive. Enquiry into the foundations of our orthographic traditions in architectural representation reveal the ontological ghosts that inhabit our drawings. As Perez-Gomez says *"The descriptive set of projections we take for granted operate in a geometrized, homogenous space that was construed as the 'real' space of human action during the nineteenth century"*<sup>18</sup>. Suspended in the drawing construction is a vision of a static world other to us clouded by shadows of dreams of ideal platonic solids and timeless realms. Such drawing tools seem a particularly inappropriate basis for evolving design born of movement.

Might we therefore need another mode of drawing, a complementary tool to these precision tools for construction; a canvas capable of responding to movement and our presence within which to design? Might we evolve a time rich canvas that starts to speak of, and to our world in its own language of movement and process. Such a nurturing home might begin to unveil new avenues for designing

with and into our world. Hill writes: *"some of the most innovative architectural developments have arisen not from speculation in building, but through the translation of particular qualities of the drawing to the building."*<sup>19</sup>

The Moving Through master course at the Bergen School of Architecture set out to pose these questions with tutors Charlotte Erckrath, Sarah Stevens, Kasper Magnussen and Matthew Turner. During the Spring of 2020 the course began an exploration of our experience of movement through urban environments, drawing on experimental methods to reengage our embodiment as active participants in the generation of lived space.

Careful deconstruction of our experience revealed complex constructional geometries that enabled specific spatial experiences; their capacity to play with size and scale, enhance perspective or surprise with unexpected choreographies of views. Our engagement with space under these terms led to the development of new methods and tools through which bodily and time-based spatial notions could be recorded or drawn out. The work spanned across digital and analogue drawing methods, recording devices, as well as intuitive and artistic strategies. Explorative and searching research approaches were evolved utilising unconventional architectural tools evolving modes of representation which might speak of movement.

The following student projects exemplify some of the different approaches explored: *Spatial Fields at Different Speeds* discusses perception and field of view in terms of speed of movement, *A Montage of Space* deconstructs the idea of the privileged view of the landscape gardens of the Picturesque, *Local Perspective* explores motion in static drawing, *Landmarks* explores strategies of

orientation when moving through the city, and *Motu Embodied Perception* evolves a drawing method to both investigate and enable design with motion blur. These explorations are starting points on a journey of engagement with the challenges and potentials inherent in designing for and with spatial movement.

### SPATIAL FIELDS AT DIFFERENT SPEEDS

This project began with a reflection on experiencing the landscape whilst travelling at speed on a train. A 7-seconds film shot from the train was analysed to understand the experience and determined a split of foreground, mid-range, and distant views. A spatial collage was used to construct the spatial reality of this

perception, where the foreground stretches far wider than the background.

Exploration of this phenomenon when moving by foot or on the light rail through a cityscape furthered understanding. Depth of field and detail. A focus on depth of field, these layers and the detail within these, appears to make it possible to understand one's own speed. The farther we see, the wider the actual range we can see due to the field of vision expanding with the distance. Things appear to shrink when we are farther away from them. Therefore the visually perceived length of the foreground is more extensive than its actual length and the opposite is the case with the background. The works begins to hint at tools that may enable these ideas to be engaged within in a design process.



Fig. 1 - Still from train journey

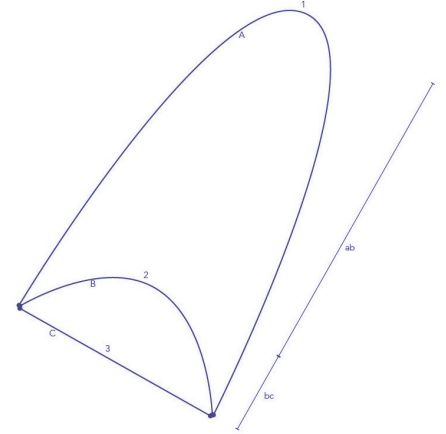
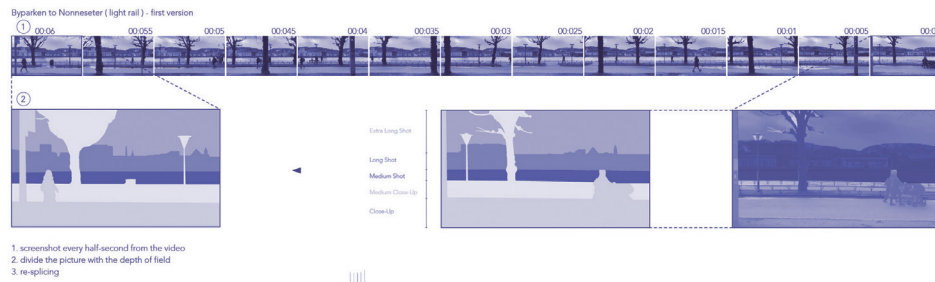


Fig. 2 - Depth Speed Mapping.

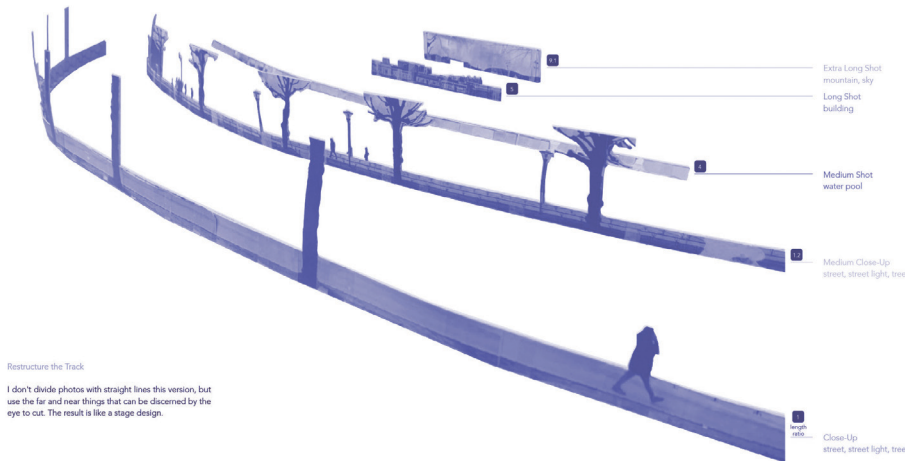


Fig. 3 - Spatial collage investigating changes in foreground, mid-range and distant view.



1. screenshot every half-second from the video  
2. divide the picture with the depth of field  
3. re-splicing

Fig. 4 - Stills from light rail journey in the city.



Restructure the Track  
I don't divide photos with straight lines this version, but use the far and near things that can be discerned by the eye to cut. The result is like a stage design.

Fig. 5 - Depth speed collage investigation in the city.



Fig. 6 - Mapping layers of depth in the city.

## A MONTAGE OF SPACE

In a motion picture series of images are arranged to suggest new ideas or interpretations, this is also possible within a choreographed movement through space. The work explores how we might begin to engage the linked phenomena of perception, montage, sequence and parallax within the design process.

The research began with a walk through Bergen in Nygardsparken. A long sloping hill with a bench resting in the middle could be seen on approach, yet this perception was soon revealed to be false as previously hidden elements unveiled themselves as progress was made further along the path. This began an exploration of the notion of the privileged view, and highlighted the potential variance between the reality of a space and what we think we are seeing. Multiple realities may therefore exist in one place, but we only see one at a time dependent on position. A fixation on the privileged view however can shut down the potential this holds however, as Eisenstein writes it can become "an obstacle blocking in the imagination of the reader the infinite potentiality of other possible views."<sup>20</sup>

The aim of the project was to evolve drawings capable of representing space through the eye of the mobile observer, with the ambition that these might inform the design process. Collaged perspectival drawings begin to reveal space seen from the perspective of movement. As a design tool these may act to reveal opportunities, discover hidden spaces, or encourage movement through intriguing the observer. It begins to open up a complex world of multiple perspectives. The park itself acts as a hidden or secluded green space within the city. Why not go further, shattering the privileged view and uncovering spaces which only appear through movement?

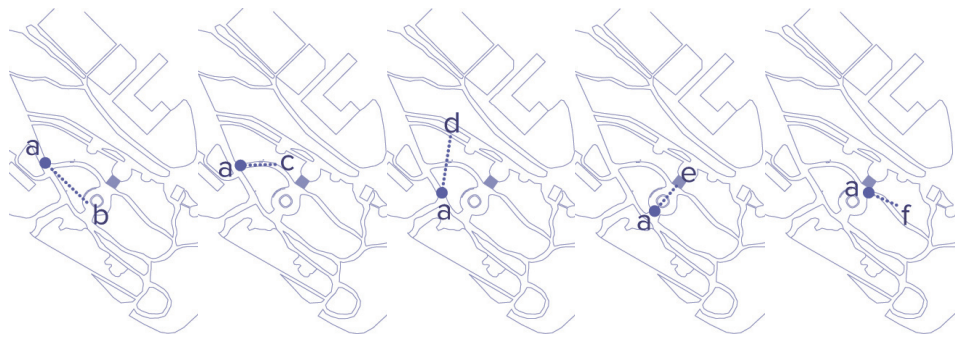


Fig. 7 - Map of the situation(a-position/b,c,d,e,f-direction of view).



Fig. 8 - Image stills.



Fig. 9 - Direction of the movement.



Fig. 10 - Variations of views; full, balanced, privileged, symmetrical, oblique.



Fig. 11 - Depth speed collage investigation in the city.

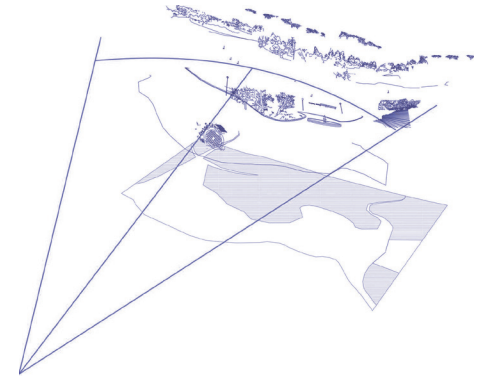


Fig. 12 - Mapped exploration of movement distortion drawn from photo collage.



Fig. 13 - Experimentation to uncover new spaces through movement distortion.

# LANDMARKS

This project explores the experience of landmarks when navigating the city. The work began with a walk along a serpentine path leading uphill towards the mountain Fløyen in Bergen. Photographs were taken at every four steps when walking downhill towards the town creating a sequence of stills. These images were then collaged to layer this time based experience into a single image of a continuous urban fabric. The image therefore includes all views experienced along the way. The information contained within the collage was then drawn out through the mapping of visual cones, revealing specific visual anchor points, landmarks, that enable orientation within the view.

A subsequent study applied this approach to the Fløyen light rail station, taking this as such a landmark. An exploration of the views from several perspectives, pointed to the fact that architectural objects do not present themselves to us in their entirety, but rather as fragments.

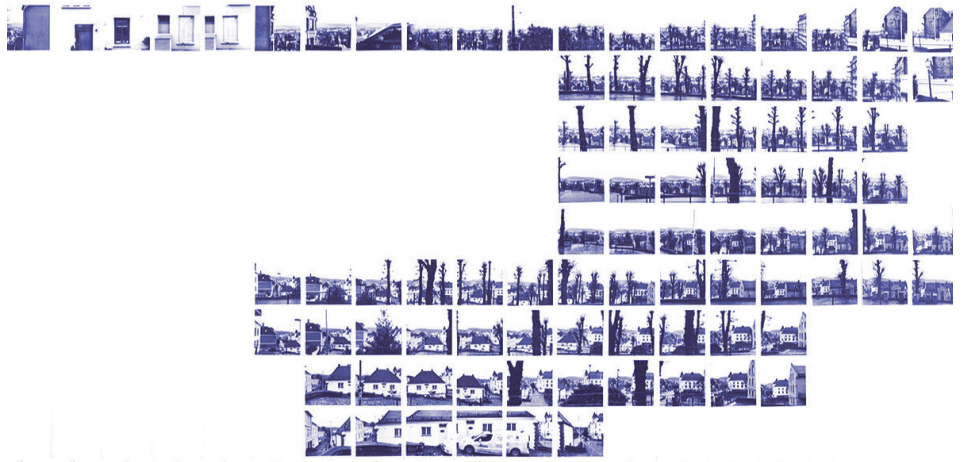


Fig. 16 - Stills taken at every four steps downhill towards the town.

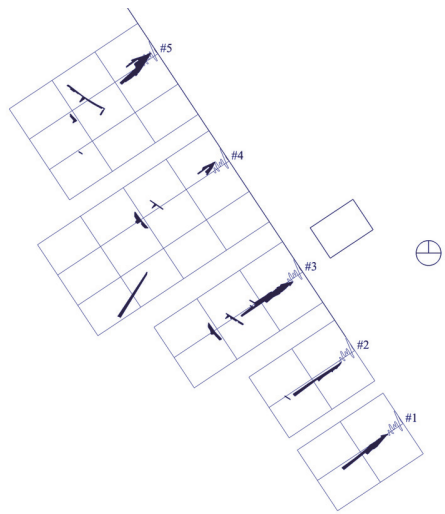


Fig. 17 - View cones from the serpentine path.

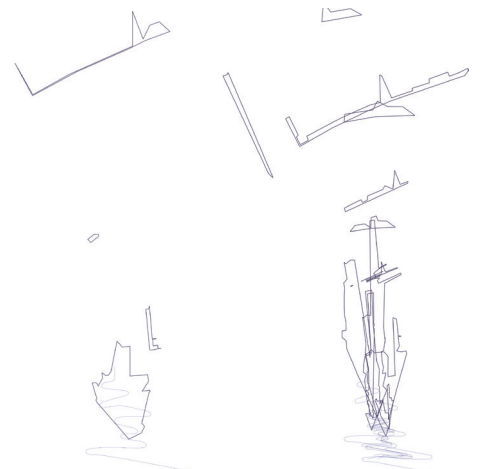


Fig. 18 - Calibration of view cones to the continuous urban collage revealing the continuous recomposition of the city in movement.



Fig. 14 - Continuous urban fabric collage from stills.



Fig. 15 - Views of the landmark.

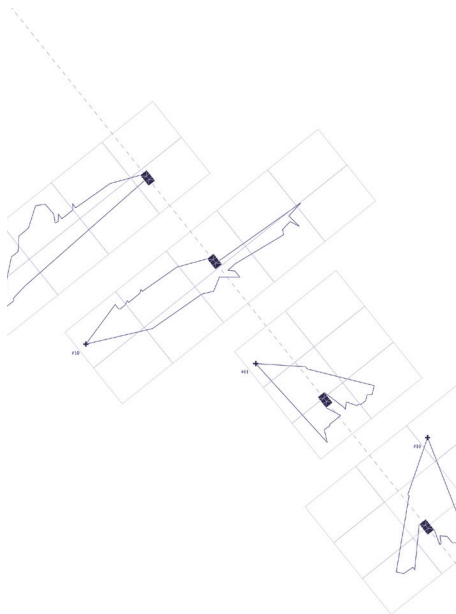


Fig. 19 - Mapping views of landmark.

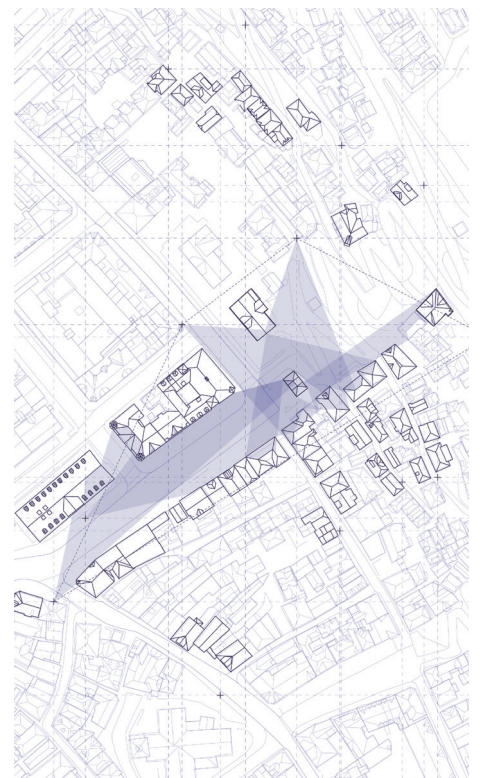


Fig. 20 - Mapping views of landmark.

## LOCAL PERSPECTIVE

In Bergen, especially when walking in Sandviken, it is hard to see the ocean in its entirety, with the only view points alleyways between houses. When we move however we see a far wider ranging view than that first suggested by the width of the alley. This range also continuously changes with our movement. A series of collages uncover this reality. A series of photographs were taken while moving from the left side to the right side of the alley. The opening of the alley controls our perception of the view. This can even lead to perceptions of movement in the view itself yet this effect disappears when the frame of the alley increases in size or becomes particularly narrow. The project begins to draw parallels to the traditions of Chinese scrolls where perspective does not necessarily correspond to one viewpoint and different parts of life are drawn into a composition of local perspectives.



Fig. 21 - Static view framed by the alley.



Fig. 22 - Collage of the moving view into the alley.

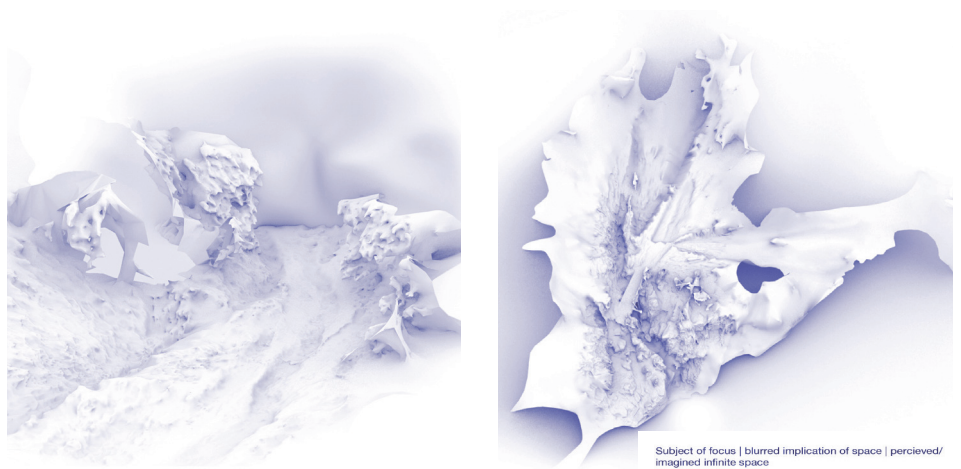


Fig. 23 - Perspective and plan view exploring blurred implication of spatial movement.

## MOTU EMBODIED PERCEPTION

This project aimed to explore the nature of in-motu [being in motion] perception and its importance in our formation of place and atmosphere. What started by trying to understand the visual perception of space grew into an understanding that, in-motu, the clarity of this perception isn't of consistent quality. The work combined the way that our attention focuses in and out of spatial clarity while we are in movement with the radial nature of our optical focus.

A series of 3D scans were taken at eye level whilst walking a goat track between Breistølsveien and Fjellsiden Nord. Their overlaying uncovered both unique and typical features of the journeys. The edges of the vignettes smoothed out as the scanner projected and approximated geometries. This

appeared analogous to the nature of the radial focus in our vision and the experience of coming in and out of engagement with the specificities of the place when walking through the forest.

The work opened up an understanding of the form of space as blotchy vignettes of detail formed out of implied fields of atmosphere. What also became apparent was that these moments of clarity were constantly varying dependant on ever-changing temporal physical, environmental, social, and psycho-personal conditions. Perception of space in-motu was revealed as less concrete than suggested by a traditional spatial survey, with only moments of actual spatial clarity or focus. The method was then deployed for the site survey of a design project site at Festingen,



Fig. 24 - Deliberately blurred view towards the goat track.

Bergen. The drawings studied the rhythm of focus and blur in the walk, identifying view shafts illustrating limited reading of the wider plane. These findings were informed the initial design moves, opening up a new territory for exploration.



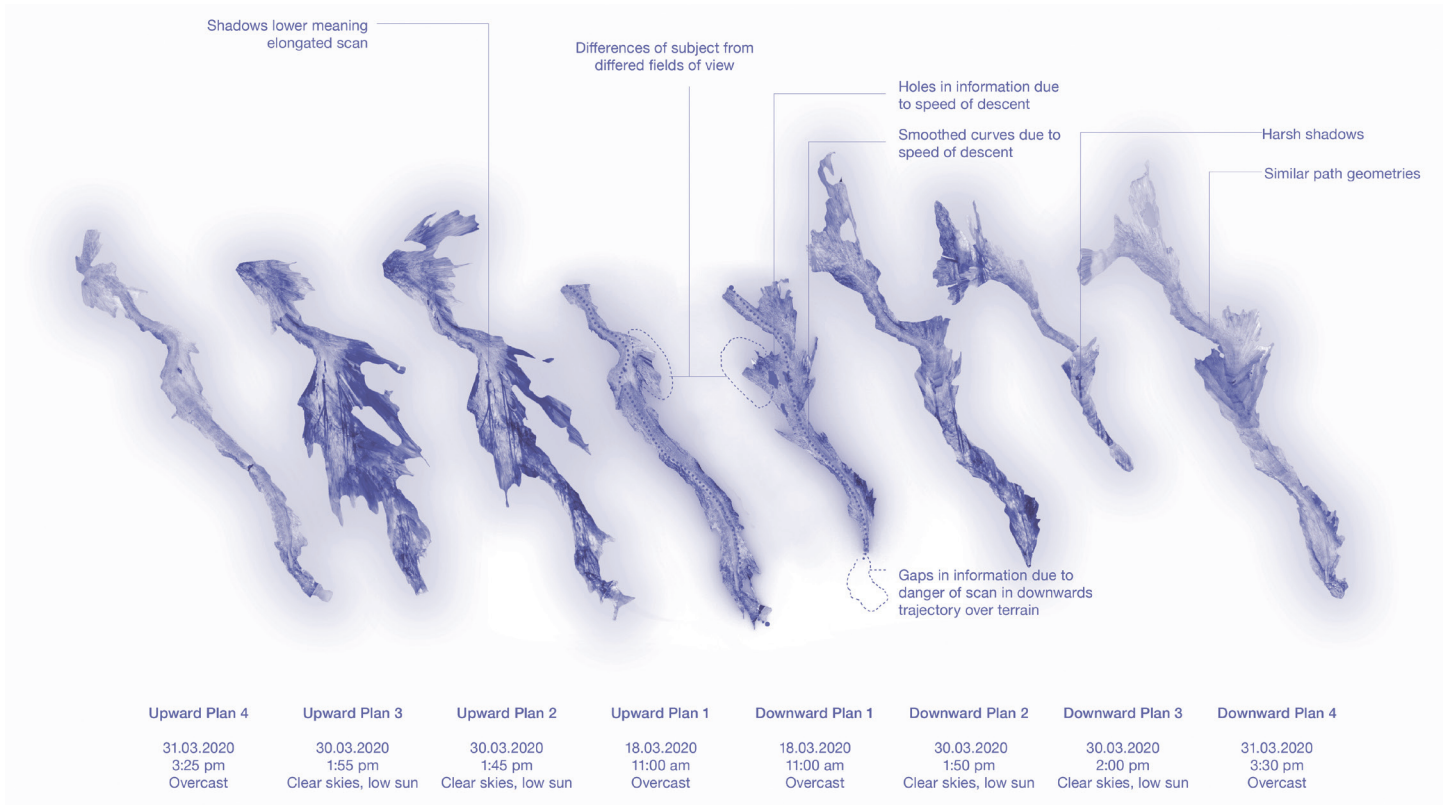


Fig. 25.

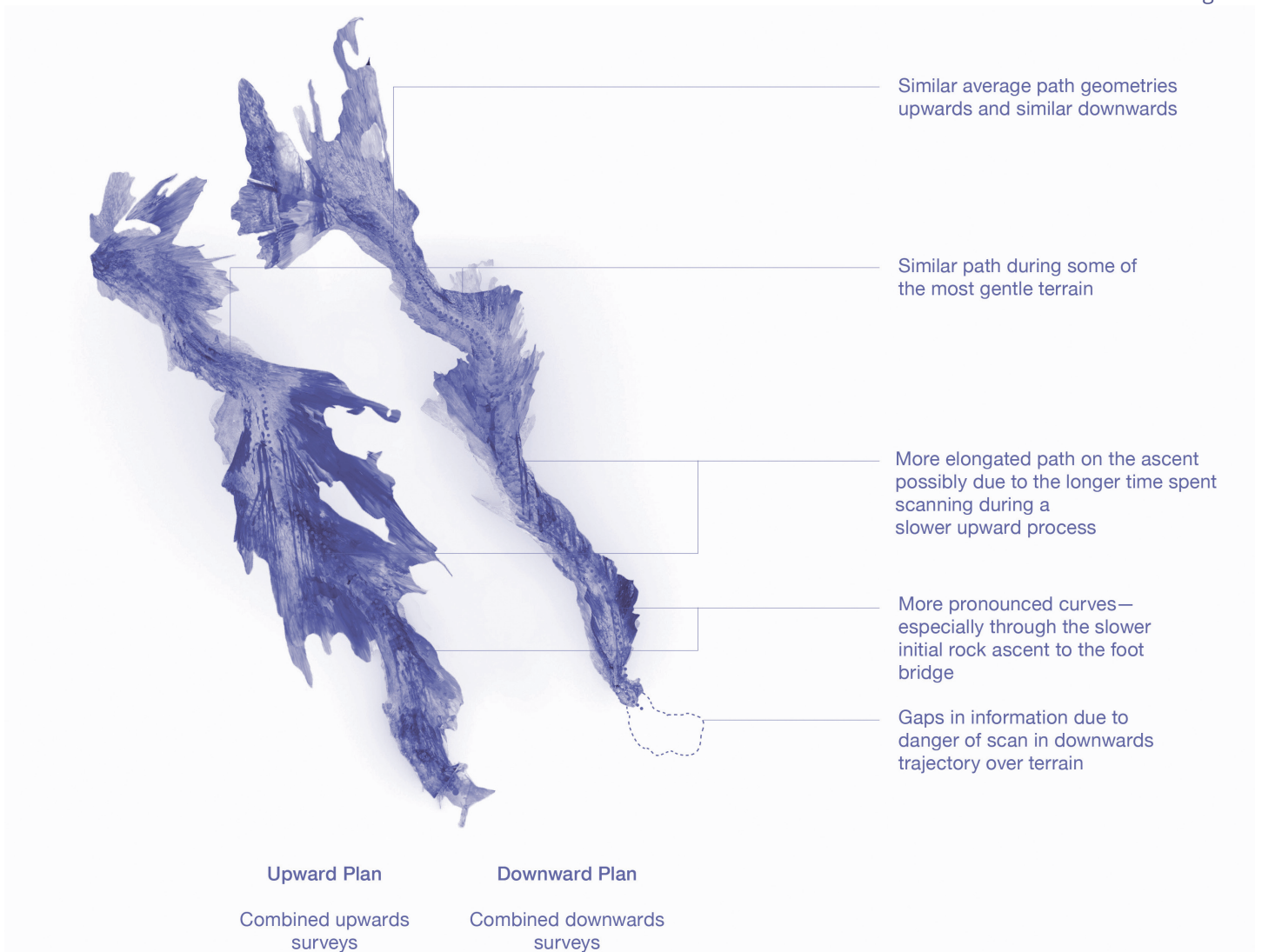


Fig. 26.

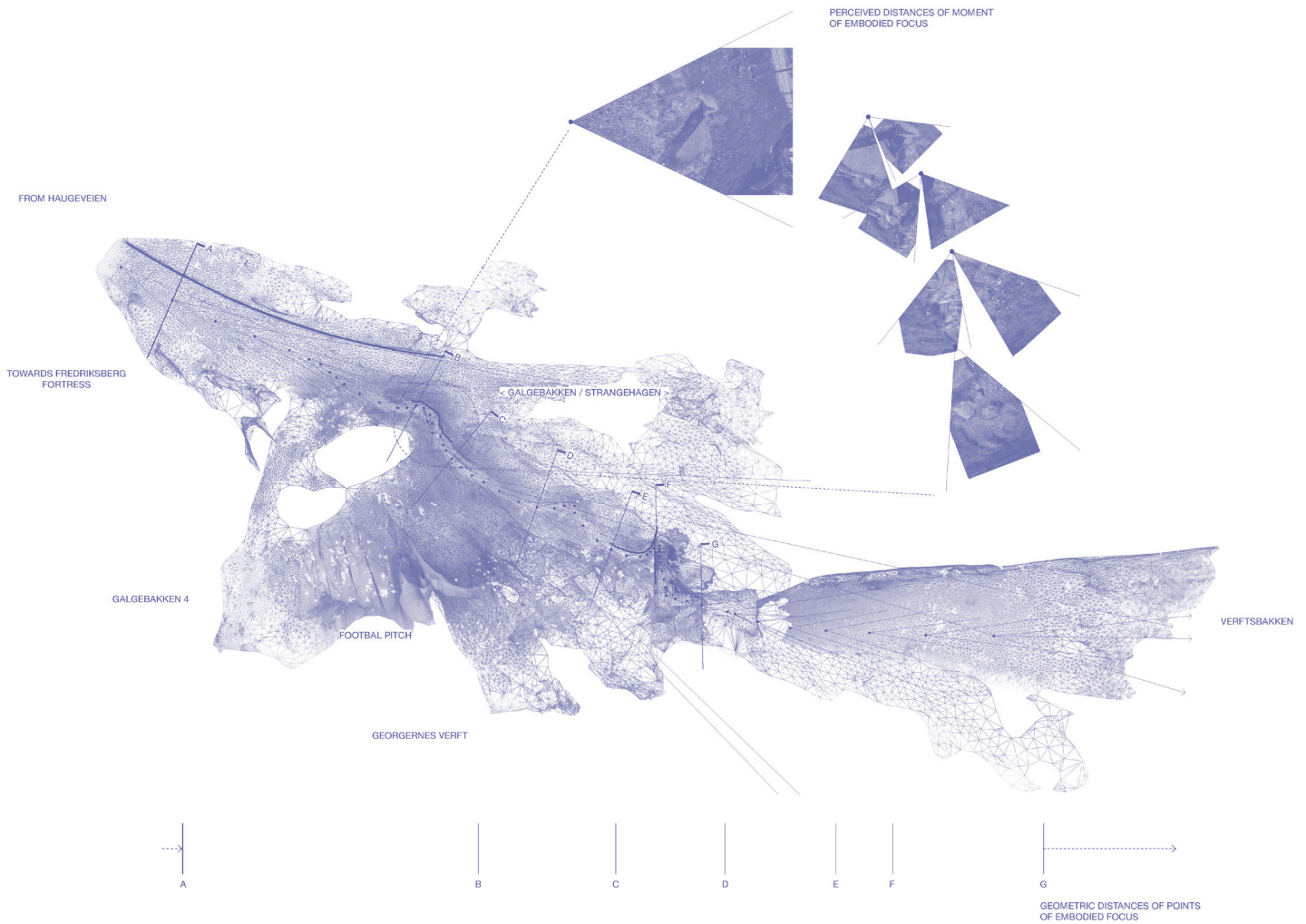


Fig. 27 - Perception plan down Festningen Nordnes.

**NOTES**

- <sup>1</sup> Tim Ingold, *Being Alive*, Routledge, Abingson, 2011, p. 13
- <sup>2</sup> Carlo Rovelli, *The Order of Time*, Penguin Books, London, 2018.
- <sup>3</sup> Tim Ingold, *Being Alive*, Routledge, Abingson, 2011, p.38
- <sup>4</sup> Clemens Steenbergen and Wouter Reh, *Architecture and Landscape*, Birkhauser, Basel, 2003, p.11
- <sup>5</sup> Eisenstein, Sergei, *Montage and Architecture*, in *Assemblage*, MIT Press, Cambridge, December 1989, No. 10, p.116-118
- <sup>6</sup> Eisenstein, Sergei, *Montage and Architecture*, in *Assemblage*, MIT Press, Cambridge, December 1989, No. 10, p.120-121
- <sup>7</sup> Eisenstein, Sergei, *Montage and Architecture*, in *Assemblage*, MIT Press, Cambridge, December 1989, No. 10, p. and Bernard Tschumi, *Architecture and Disjunction*, MIT Press, Cambridge, 1996, p.
- <sup>8</sup> Bernard Tschumi, *Architecture and Disjunction*, MIT Press, Cambridge, 1996, p.121
- <sup>9</sup> Bernard Tschumi, *Architecture and Disjunction*, MIT Press, Cambridge, 1996, p.165

- <sup>10</sup> Bernard Tschumi, *Architecture and Disjunction*, MIT Press, Cambridge, 1996, p.154
- <sup>11</sup> Bernard Tschumi, *Architecture and Disjunction*, MIT Press, Cambridge, 1996, p.162
- <sup>12</sup> Tim Ingold, *Being Alive*, Routledge, Abingson, 2011, p.46
- <sup>13</sup> Alberto Perez-Gomez and Louise Pelletier, *Architectural Representation and the Perspective Hinge*, MIT Press, Cambridge, 1997, p. 7
- <sup>14</sup> Jonathan Hill, *Building the Drawing*, in *Architectural Design*, Wiley-Academy, London, 2005, Vol 75, No.4, p.16
- <sup>15</sup> Jonathan Hill, *Building the Drawing*, in *Architectural Design*, Wiley-Academy, London, 2005, Vol 75, No.4, p.15
- <sup>16</sup> Jonathan Hill, *Building the Drawing*, in *Architectural Design*, Wiley-Academy, London, 2005, Vol 75, No.4, p.17
- <sup>17</sup> Tim Ingold, *Being Alive*, Routledge, Abingson, 2011, p.226
- <sup>18</sup> Alberto Perez-Gomez and Louise Pelletier, *Architectural Representation and the Perspective Hinge*, MIT Press, Cambridge, 1997, p.5
- <sup>19</sup> Jonathan Hill, *Building the Drawing*, in *Architectural Design*, Wiley-Academy, London, 2005, Vol 75, No.4, p.17

- <sup>20</sup> Eisenstein, Sergei, *Montage and Architecture*, in *Assemblage*, MIT Press, Cambridge, December 1989, No. 10, p. and Bernard Tschumi, *Architecture and Disjunction*, MIT Press, Cambridge, 1996, p.114

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