Type in Space:

Experiments in Mixed Reality

Article by Tony Pritchard based on an interview with Dong Yoon Park

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The work of Dong Yoon Park presented within this article, engages with the theme of ‘mixed-reality’ that blends existing environments with virtual layers of typography, enabling visitors to immerse themselves in typographic landscapes liberated from the screen. In doing so the user of these experiences may question how we define notions of three-dimensional place.

Dong Yoon Park is a designer, creative technologist and author from Seoul, Korea. Yoon studied electrical engineering at Korea University before embarking on a professional career at Samsung Electronics, working as a software research engineer with a focus on user interface design for mobile technology. It was through this process that he became increasingly absorbed by design and he returned to study, first at Samsung Art and Design Institute (SADI) and then Parsons School of Design. This was where he developed his screen-based interactive ‘Typography Insight’ concept. The project considered the various aspects of typographic detailing; making comparisons between typefaces by overlaying them and moving them one on top of the other; and an explanation of terms relating to typeface anatomy.

In 2008 Yoon created the flash app ‘Typeface Explorer’ which explored a three-dimensional timeline for historically important typefaces. Yoon states this as the beginning of his interest in typography within interactive digital media. He noted the announcement of the iPad in 2010 as ‘a great platform for learning and playing with typefaces’. He imagined ‘the power of being able to physically touch and interact with type in any scale’. This was the beginning of his app ‘Typography Insight’ (http://typeinsight.org). He sees this app as a ‘toolkit for learning and teaching typography’.

Yoon published his MFA thesis project Typography Insight on iPad in 2011, then added iPhone and Windows versions later. The app was embraced by the design community and featured by The Atlantic, Gizmodo and Fast Company who commented: ‘Anyone who loves books, words, history, or fine art – even in the slightest bit – will find Typography Insight as intoxicating as Wikipedia and as fun as a video game’. Since 2011 he has worked with Microsoft as their User Experience (UX) Designer.

A Sense of Mixed Reality Space

When introduced to the theme of Typographic 71, ‘sense of place’, Yoon mused: ‘Definitely typography is the first element that gives me the sense of place. I have been experiencing similar emotions by just watching 4K high-resolution videos of street walking in Japan. Already many virtual reality apps and 360 video content are exploring this kind of virtual travelling’. Reflecting on how the location might effect the typography, he suggests: ’It would be very interesting to experiment with a single virtual environment and changing type to different languages. I was planning to add Asian types to the ‘Type In Space’ app’.

‘From Engineer to Designer’

Yoon has had a love of typography and its potential through screen interfaces long before the advent of smartphone technology. This began early in life when he started ‘doodling’ company logos and developed an appreciation of the letterforms within. Although he has a background in coding and technology he saw beyond this and realised that art and design could be empowered through this process. He cites data visualisation as one such area drawing on this subject.

Yoon regards typography aligned to the grid as fundamental graphic design elements within his app designs. His ability to understand both the abstraction of code and the reality of its application is probably unique in a world that sees the engineering separate from design and aesthetic judgement. Yoon reiterates this point: ‘As a designer who has a developer background, I always have been interested in connecting design and engineering’. He realised this dream at Microsoft, as a UX designer helping developers, by creating open-source building blocks for the common mixed reality interactions and UI controls.

Typography Insight for HoloLens

In recent years he has been designing and developing HoloLens experiences as a personal project. In 2016 Yoon launched his first HoloLens app ‘Typography Insight for HoloLens’ which ‘allows you to experiment and play with type in three-dimensional mixed reality space’. The applications and implications of this development is the subject we will be reflecting upon in this article with Yoon himself. Initially he thought ‘typography would not be a relevant topic in 3D mixed reality space since typography has been about 2D spaces – paper, books, screens and print’. As soon as he started working with HoloLens and the related headset, his mind was changed: ‘I realised that typography in a mixed reality space could be really gorgeous!’.

Holographic Type Sculpture at Bellevue Arts Museum

When Yoon visited Bellevue Arts Museum, Washington in 2016, he conceived and installed a holographic type sculpture within the atrium and rooftop sculpture garden. It was a typographic experiment in three-dimensional physical space. He attempted to create an intriguing contrast and harmony with the architectural background and other real-world objects in the environment. To date we’ve known of interactive type, but mainly this has been screenbased. What Yoon is imagining is the liberation of type from the screen into real space and immersing the viewer in a typographic landscape.

Yoon states that he is ‘very excited about the potential of HoloLens as a new medium for art installation’. MSPoweruser suggests that Yoon’s installation ‘raises interesting questions about mixed reality and communal space’, commenting further that ‘any person could annotate a public space shared by others’. This has implications for the ownership of ‘artificial’ public spaces and who might additionally own the virtual intellectual property. One might question whether Yoon is a digital graffiti artist altering our experience of shared environments.

Museum of Type

In Yoon’s virtual museum you can ‘explore and learn about historically important typefaces’. Through the use of motion controllers you can ‘hold’ the type and examine the distinctive characteristics of individual letters. The project originated from the idea that Yoon desired to create a virtual environment where people can explore and interact with type in a more tactile and fun way. He states: ‘I want to make the type grabbable so that the user can pick up, hold and observe its detailed shape’. He continues: ‘as a type lover, being able to grab type and observe it from a different angle was an exciting experience…direct manipulation with motion controllers is one of the most fun interactive experiences in mixed reality’. With the use of ‘mixed reality’ immersive headsets he aims to explore ‘the possibilities of typography education in virtual space’.

Yoon acknowledges that for some typography ‘can be a dry subject and this can block the way to learning for many young students in this digital era’. He continues: ‘books are great but often books on typography get left on the shelves’. He hopes to bring the subject alive by making type more ‘tactile, physical and interactive’. Despite his adeptness with technology Yoon often returns to the medium he loves – that of sketching with a pencil. As Philip Joe once commented ‘pencils are technology too’. He begins by sketching out ideas to construct a world he wishes to create digitally.

News Space

News Space (2017) is an experiment from Yoon, which is a ‘spatial news headline visualiser in mixed reality space’. News headlines inhabit your room in a spherical layout. You select the stories you wish to read by air tapping a news provider button. By considering the entire spatial environment the designer is liberated from the usual constraints of a static two-dimensional surface.

Developing Mixed Reality Applications

To create mixed reality experiences, Yoon uses Unity, the 3D app development software. Along with this he uses the Mixed Reality Toolkit (MRTK), the open-source building blocks for mixed reality app development, to shape the experience. Yoon states: ‘if you enjoyed creating interactive experiences with Flash, you will be able to easily get used to Unity. The only difference is that Unity is for 3D experiences.’ You can find useful resources on http://aka.ms/MR

Type in Space

Most recently, Yoon has published a new app ‘Type in Space’ for HoloLens, which separates out the ‘type playground’ element from his original app ‘Typography Insight’. This enables type layout in physical space and can be used to generate architectural signage and wayfinding; the labelling of complex objects in the environment; and spatial mapping. By leveraging HoloLens’ spatial analysis feature, the app allows for real-time design within the environment where the type snaps on the real-world physical surfaces. Typefaces can be selected, changed, rotated using both hands, and then colour applied. Currently, unless you possess the headset you will navigate the space in analogue reality whilst others with the headset will have a different sense of place enhanced by a ‘mixed reality’ of the analogue space and the complementary digital objects. This then provokes the idea of whether it is possible to navigate the space in multiple ways, depending on what filter you apply. Will it be possible to switch between modes and compare and contrast experiences in real-time?

The Future for Mixed Reality and Typography

When asked about the future of mixed reality and typography, Yoon speculates: ‘since mixed reality is in a very early stage, I am sure there will be a lot of experiments from designers and artists’. In terms of typography he sees a particular challenge: ‘since it involves another dimension, the z-depth, it becomes a little bit tricky to communicate type metrics, for example, 24pt type could be very big or small, depending of the distance in 3D space’. Yoon suggests that ‘in HoloLens, since the recommended distance to place holographic objects is two metres for user comfort, we use it as a starting point to communicate type size’.

A couple of other very interesting techniques are: ‘the “billboarding” feature which makes the text always face you regardless of the view angle and “constant angular size” which maintains type size regardless of the distance to secure legibility and readability of type’. Yoon sees other necessary improvements particularly within the headset’s hardware display resolution. The current generation of virtual reality headsets show “screen-door effects” which is not ideal for displaying type’. Yoon is fortunate in that ‘HoloLens has a great resolution (PPD, Pixels Per Degree); it was perfect for me to render and play with type’. He concludes: ‘the real world is your canvas’.