

# A Case for Play: Immersive Storytelling of Rohingya Refugee Experience

## Abstract

The displacement of refugees from their natural homes have caused violence and estrangement all over the world, to the detriment of victims who live in unbearable conditions outside their homelands. There's misunderstanding amongst hosts and Western media that see refugees as destructive hoarders of resource. Educating two sides of a refugee-host divide have applied immersive filmmaking following the cinematic 2D approach, portraying static scenes with narratively voiced works that try to put us inside refugee camps to elicit empathy. Instead of this approach, we embarked on a refugee-centered journey-based approach to show the daily lives of Rohingya refugees in Balukhali, Bangladesh using dynamic movements in VR space, spatial audio that surprise, and collaborative filmmaking that involves the participants empowering themselves using 360 camera and phone as tools for exploration. Instead of investigating the hardships of refugees from a Western perspective, we enabled a boy and his family in the refugee camp to create a visual experience that represent their lives. The interactive VR film is an empowerment tool to enable self-expression in a corner of the world that have become used to being the observed as opposed to the observer, taking advantage of VR as a medium for immersion and capability to surprise.

## Keywords

virtual reality, 360 film, refugee camp, social empathy.

## Introduction

Documenting the truth requires telling stories that faithfully represent the subjects in the way they are affected emotionally, not merely the reality. Thus, showing only the physical destructions of an event would not get at the truth of the way people were affected, both the perpetrators and the victims. However, subjective stories that get at the truth emotionally can be laden with bias. How do you tell subjective stories objectively without agenda? How to represent your subjects in their subjective states?

The medium of Virtual Reality (VR) is a way for journalists to show the assumed natural state of its subjects, by placing a 360 camera where events occur. VR films like Chris Milk's "Clouds Over Sidra" put audiences in a static scene in the middle of the refugee camp to evoke empathy

for the plight of its subjects [15]. But VR fundamentally changes the responsibilities of the journalist filmmaker, as the producer and its sponsor quickly learn to produce material that evokes emotional responses for their own sake, making the viewer emotionally vulnerable due to the high level of fidelity [13]. Because the director steps away from a completely immersive but static scene, we forget that the entire experience is orchestrated to evoke a certain type of reaction under the impression of duplicating reality. Unlike traditional filmmaking in 2D, the entire set is part of the VR experience, so that all arrangements with subjects have to be done well before hand, with mutual understanding.

How do we overcome the propensity to use VR to make agendas? In order to tell subjective stories in a transparent way, we used VR in three ways that remind us of the limitations and ethics of the medium. 1. We aim not to hide the director filmmaker, but to make her a part of the truth-telling, for in making the documentary, we inserted ourselves into the sociology of the environment, so why should we disingenuously hide ourselves? 2. We invite the subjects to make the film, empower themselves to express what they would like, giving them direct access to the audience and allowing them to have agency about being the portrayer and not just the portrayed. 3. We use dynamic movements and spatial audio from surprising sources to explore the VR medium, reminding audiences that VR is telling us a story by the way an actor with agency moves her journey in time, not a static representation of reality.

Together, these methods show viewer experiences that coalesce into stories framed collaboratively by the creator and her subjects, illustrating VR as process of expressive filmmaking rather than description of reality, opening up opportunity for the filmmaker and subject to play together, to involve both parties in the documentary process.

## Background

**Historical Context** To investigate the 360-VR medium as collaborative play, we visited the Rohingya refugee camps in Southern Bangladesh to document a refugee community. The Rohingya is a Muslim group previously living in the Buddhist Rakhine state in Myanmar, with a history of violence that cuts deep into its culture [2]. During WWII, the Rohingya Muslims were aligned with the British while the Rakhine Buddhists supported the Japanese. After the war, the Rohingya were denied citizenship, after the Myanmar

government launched operations to clear the area of the Rohingya. In reaction, attacks were led by the Arakan Rohingya Salvation Army in 2016, leading the Myanmar government to systematically uprooting hundreds of thousands of Rohingyas away from their homes using violence and humiliation. Over 750,000 refugees fled to neighboring Bangladesh, whose government is dealing with massive populations, and wants to prevent further explosion [16].

Photographic images from both sides have appeared that seem to support different agendas. Myanmar officials claim one image supporting ARSA attacking its own village, but later investigation led to identification of Hindu arsonists. Thus there's a need for objective, immersive documentation of the refugees' plight. Refugees themselves do not have means of making films or documenting their lives, making misperception on the Bangladeshi side common place. The public perception in Bangladesh as perpetrated by government-sponsored media is that Rohingya militants are breeding in refugee camps [17], aligning with the reluctance of Bangladesh to absorb the 1.3 million Rohingya amidst the stalemate between the UN and Myanmar. The Bangladeshi authorities have portrayed the Rohingya as militant and self-serving outsiders who seek to benefit from Bangladeshi resources.

**Virtual Reality as Medium** Humans are uniquely able to empathize not only with other humans, but animals and fictional situations. VR transports humans to a story environment to see the same situation and interact at high fidelity. This generates participatory empathy, which comes from our own experience of the subject, as opposed to affective empathy that comes as an emotional reaction to a someone's plight [20]. Study shows VR results in greater engagement and empathy compared to 2D displays when viewers saw a girl living in a refugee camp [18]. Further studies found greater empathic response to color blindness after a VR experience, facilitating perspective taking [1].

VR allows immersion in other perspectives, but does VR change behaviors enough to drive activism? In study of charitable giving to local aid organizations, VR experiences of a destroyed Middle Eastern city, and not flat monitor 360 video, led to greater number of givers and greater amount of donation per giver [8]. Perspective taking in VR led to a significant increase of post-exposure-experience petition signing at 82% compared to 61% for the 2D screen equivalent [9]. Others have found that dissemination of VR material led to both positive and negative emotion increases that call for behavioral and political change, highlighting the role of VR outside purely immersion [6].

The interaction of human emotion with VR experience is not as simple as one-directional influence, however. Personality traits are correlated with immersion in VR, suggesting that humans have purposeful intention over control of VR experiences [19]. This bidirectional influence ushers in a VR landscape in which storytelling is implicit and based on a perspective where the environment is set up and configured for self-exploration that leads to its own stories being told, as in interactive games. Future immersive film

practices will create spaces and social connections that form empathetic relations without overt, direct narratives [12]. We leveraged this opportunity with VR to create collaboratively empowering work that allows subjects to create their own stories to tell without deliberate narratives.

**Virtual Reality as Journalism** In the use of VR as a medium for journalistic narratives promulgating peace, viewers are allowed to roam in a virtual world created from 360 photos or videos. UN's VR documentary "Clouds Over Sidra" tells the story of a Syrian girl refugee living in Jordan [15]. Seeing the world from her perspective increases self-reported empathy and emotional response, and facilitates behaviors like willingness to support humanitarian work [6]. A VR film about an Ebola survivor in Liberia [3] led to a 16% rise in donations for Amnesty International.

Immersive journalism provides local populations with technology to narrate their lives, like the works of Fran Edmonds and Grady Walker. In the Shootback Project, journalists gave Kenyan youths \$30 plastic cameras to document their lives for 3 years, empowering storytelling for those without such means [21]. Such work was also done in Tanzania with the Baraza Television initiative. We were inspired to take participatory video-making projects to a more immersive and accessible level with 360 video.

Immersive work with refugees are not limited to 360 video. This includes Al Jazeera's ContrastVR project [14], and *I Am Rohingya*, a play that documents 14 Rohingya youths discussing onstage their lives during the escape from Myanmar [22]. Theatre may be the most immersive form of experience of all since it duplicates the experience with subjects every time the play is performed. Another example of telling the story rather than reality is Khaled Hosseini's immersive animation about the death of a 3-year-old refugee boy who drowned attempting to escape the camp [10]. Drawn in 360, it gives the feeling of the events surrounding the boy as told by his parents.

While these previous efforts utilize VR as an immersive medium, they rely on static shots reminiscent of screen-based filmmaking. Sound is non-spatial, and the camera is stationary. This makes for a static set where the filmmaker is absent from the theme, so that whatever is presented is imaged to be reality. This fails to recognize that behind the scene, the filmmakers have given directions to their subjects, who may be told instructions prior to the shot to maintain the theme, which are unknown to the VR viewer. These experiences tend to be slow and show sad, depressing scenes that evoke sympathy, not empathy. We don't feel like it's the way life is in the camp, but rather the dreary life that we should believe exists there based on what the filmmakers have wrapped up and presented to us. These films use dubbed voices and westernized music, and tend to have beautiful renderings of nature that contrasts with the camp, emphasizing their decrepit state. Point of view of the camera seldom shifts, in fear of dizziness in VR, and even the equipment that the 360 camera sits on is painstakingly smudged out in post-production, emphasizing the lack of perturbing into the scene by the filmmakers.

However, the filmmakers did perturb the camp, by the existence of the crew and the directions given, for making the 360 film was an agenda that blurred out the true state of the camp the way it was lived in. Instead of this packaged process, can we create a participatory method which involves both subjects and filmmakers, so that the result is an organic representation of what the journey was: that of outsider journalists exploring homes of people they are curious about? Can we get refugees to play collaboratively with us, telling us a version of their own story?

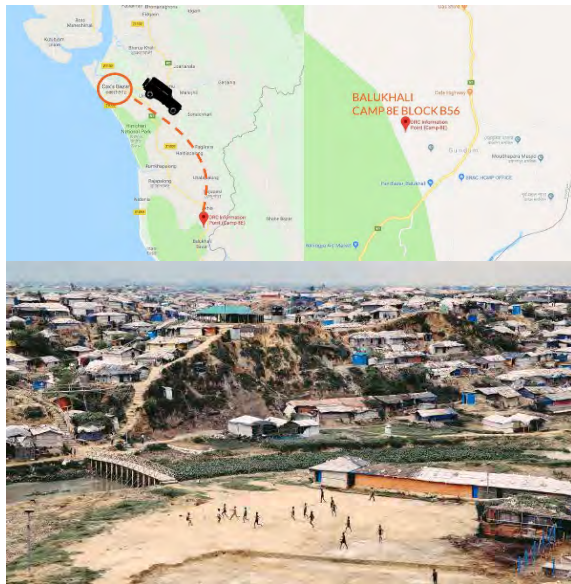


Figure 1: (Top) Rohingya refugee camps in Balukhali, Bangladesh, a 4.5 hour drive away from nearest town Cox's Bazar. (source: maps.google.com). (Bottom) Block B56 of Balukhali. The football field is surrounded by shanty in all four directions.

### Methods

We stayed in Cox's Bazar in the month of Ramadan in late May, and visited the Balukhali Rohingya camps by a 5 hour drive every morning, because we are not allowed to stay close to the camps (Fig. 1). We had no power, and must leave before 3pm each day during Ramadan due to camp closure, so only refugees themselves can take videos in the evening. Upon arriving at the area, we climbed up the hills in block B56 to meet the Maji (leader) Salim. Working with the Program for Helpless and Lagged Societies (PHALS), Salim took us to Camp 8E, where we visited two families before deciding to work with the family of Ameena Khatun, who had 10 children--5 sons, 5 daughters. Like most Burmese, the family does not have last names, so we refer to each of them by their unique first names.

Ameena and her husband Ehsan's family came from Patiya Para, Myanmar during the forced extradition (Fig. 2). They walked through hills and forests for 16+ days in the heat of the burning sun and in the rain. The children became sick and they had to beg for rice from others on the way. The Myanmar military already burnt their houses

down so there was no choice but to go forward. People were seen jumping into rivers and falling from hills, fleeing from the military. They cooked only once every four days, and must rely on these provisions during that time.

One daughter of the family, Shamima, died on the way to Bangladesh. She was vomiting and having diarrhea, with very little to eat, but cause of death is unknown. Because there were so many family members, they had to leave her in the jungle and move on. No one has any mementos, souvenirs, photos, or clothing of hers, because they took no belongings from home. The only remnant of Shamima that Ameena Khatun has is in her memory. Ameena can neither draw nor write, so Shamima's memory will be hard to pass on. The only thing she had wanted was her children's safety, so Ameena has difficulty dealing with this pain to this day. Currently they also lack provisions and clean water, but in Bangladesh at least they do not fear having the light on during Ramadan or fear practicing their religion.



Figure 2: (Top) Select members of the family of Ameena Khatun, including father Ehsan (left), and son Mofizur Rahman (front left), who narrated the VR experience. (Bottom) Children of the refugee camp in the 360 VR production interacting with the short footage they themselves took after using the 360 camera to record some movement associated with navigation using the camera.

To tell the story of the Rohingya refugee experience of the family of Ameena Khatun, we needed to describe their lives from different perspectives, so that audiences can be immersed in the many dimensions of the narratives. Thus we took a multi-disciplinary approach of 1. A narrative film about how Ameena and the family deals with the death of Shamima, as a way to serve as the lasting memory that otherwise would be lost to posterity; 2. A documentary about empowering refugees to express themselves by teaching them video-making using a phone during eve-

nings at Ramadan when we don't have access to them; 3. A VR experience that takes the audience inside camp life, narrated and guided by Mofizur Rahman, with camera work and playful initiative by Mofizur and friends. For the rest of the paper we will concentrate on the VR experience.

The VR film was shot using a Ricoh Theta V 360 camera attached to a TA-1 3D spatial audio microphone, and stitched and converted offline. Refugee-handled camera work was hand-held, while tracking scenes following Mofizur during his journey were done by lifting a fully extended tripod above the head of the cinematographer. Mofizur and his companions were instructed only on how to hold the camera without obstruction, and allowed to roam freely around the house and to pass off the camera to others. Before recording the main interactions, subjects were given the camera to take a short footage. That footage is converted from two-fisheye view into 360 video format on the computer and shown to the subjects, who could interact with the 360 nature using the computer trackpad (Fig. 2). We then loaded the 360 video into a Unity scene with a single sphere and inverted normal for display on the inside of the sphere. The result is exported to a Google Pixel XL phone for immediate viewing by the subjects as a prototype in VR. They were allowed to iterate as many times as desired before taking the main footage.

### Outcomes

**Unleashing the Auteur** Previous VR films in the refugee camp space exhibit static scenes, passively viewed subjects in narration, and hidden evidence of directorship and cinematography. Our work with the Rohingya attempt to address these issues to produce a more active experience that shows collaboration between subject and director.

Both "Clouds Over Sidra" and "Waves of Grace" contained long, static shots with the camera smudged out so that audiences cannot see the mechanisms of the filmmaking. This technique is especially pronounced in "My Mother's Wing," a VR film about a mother's loss of her children in Gaza [4], which narrates the experience like a traditional 2D film, with long voice-overs. In one moment, a car seat is emptied in order to accommodate the invisible but present audience. The voice-overs are in English and the music is orchestral. Not shown are the filmmakers' involvement and the behind-the-scenes production that led to the naturalistic behaviors shown. Instead of showing the refugee experience in isolation, we recognized that any observational process is inherently transformative of the subject being studied [7]. The moment we arrive at the refugee camp, we are dealing with subject preconceptions of what should be shown and not shown to us. For example, do these filmmakers wanting to make a sad story? Should we show them our sad side? What do they expect refugees to be like? Shall I show them what they want to see? These preconceptions necessarily influence the documentary, so that the supposedly objective film with an invisible narrator is already impossible upon first arranging such a visit.

Instead, we wanted to show the collaborative nature of such a visit. We are not the only ones observing; the refu-

gees are observing us as well. We should not be the only ones expressing ideas; the refugees have things they want to show as well. The first order of action was to show us not hidden from view but as part of the collaborative process. Instead of objective cameras planted on the ground, we held up the 360 camera with our hands and holding on to our tripods. We played in the football games they play, not hiding from it (Fig. 3). We followed along during the tour, and participated in passing the camera to each other. In turn our camera exists in the scene, not apart from it. The story that emerges is not an impossible attempt to hide our presence, but rather to document how visiting refugee camps occur, and how we learn from each other.



Figure 3: Involvement of the creators in 360. (Top) A scene where journalists are working with documentation of the family while Mofizur Rahman enters with the camera. (Bottom) A scene where the director plays football together with Rohingya children.

**Subject Empowerment** Current VR experiences reply on filmmakers to provide the context, both in terms of where the film takes place and who we can meet in it. In "The Displaced," a VR film about three children from refugee camps, we get to meet the protagonists but never follow them [11]. We are ferried on a boat we cannot step away from and asked to read subtitles as the protagonists read their lines. When we really want to see the protagonists face-to-face, we are confronted instead with desolate landscapes. What if instead of being a passive subject, we let protagonists take the camera where they wish to take us, and let them dictate the terms of the journey?

To empower the refugee subjects, we took four approaches to making the VR film experience: 1. We gave the family a Samsung phone capable only of taking video and photo, and asked them to document evening activities when we were not there, and used their content in our documentary and exhibition. 2. We showed them how VR filmmaking works from taking footage to importing to

stitching to viewing the binocular result on a phone, then asked them to take the camera around the house and beyond to give us a tour as they pleased (Fig. 4). 3. We followed the subject around as they move about town, so that we with the camera mounted high above us on a tripod, is the follower to the initiative of the subject. 4. We let the children learn about VR filmmaking via demos and then let them pass the camera between themselves, allowing them to see what their presence looks like on the stitched video on the computer. This allows them to play with passing the perspective amongst themselves, and with the audiences' view using their own creative movements (Fig. 5).



Figure 4: Empowering refugee subjects in creating their own voice. (Top) Providing a phone and instructions on use to a family member so that they can be free to document their evenings during Ramadan. (Bottom) Mofizur Rahman giving a tour of his home using a 360 camera as perspective.

The result of this initiative-based filmmaking is an increase in the way the refugees promote their own stories. After learning initially about how their movements in space in the camera translated to a 360 view that evolves in time on the computer and in binocular form in the phone, they began taking the camera to places we did not envision. Mofizur Rahman put the camera high on the cabinet when the family began making Semai cakes, to give us a better view. The children took turns playing with the camera, giving it to each other without choreography. At the football field, following the person pursuing the ball led everyone to follow the camera, and to play with it as if it was part of the game they are orchestrating. When we showed the children the footage they helped to make, they flocked to the computer and marveled at the technology.

**Dynamic Video and Audio** The static nature of video and audio in VR productions makes it seem as if it's part of the limitation of the genre. Refugee VR films are reluctant to tire the audience, or push the boundaries of camera move-

ments. In "Meet the Soldier" [5] and "Refugees," VR films from Scopic, soldiers running to refugees arriving on harbor is portrayed without a jolt of movement of the 360 view. While dynamic events like shooting and pushing occur all around, the audience is fixed to the ground without a trace of movement. This is used by major VR refugee releases, along with Westernized music that often don't fit. It caters to the eye that is used to cinema: subtitles, fixed camera, sad music. To document the refugee experience as opposed to a sad vision of them (who are happy and playful), we play with perspectives and surprises, to fit the medium to the view of the subject as opposed to our own.



Figure 5: Empowering refugee subjects in expressing their own voice. (Top) Following the trek laid out by Mofizur Rahman as he takes his friends and us around the camp, showing us his favorite places. (Bottom) The children passing the 360 camera around amongst themselves, playing with perspective.

To show dynamic interactions reminiscent of play, we traveled with the 360 camera either on a tripod that we move, or by hand hold. We also enabled static scenes where families are eating or making food, only to have Mofizur Rahman take the camera during the recording and go outside. There are movements in vessels like the vehicle that took us to camp, in refugees taking the camera to places like football fields and kitchens, and in the cinematographer following the subjects while carrying the instrument (Fig. 6). Interactions are unpredictable, such as when children interrupt us from behind, taking advantage of the VR medium to truly use all 360 degrees.

Audio of our VR experience is also dynamically enabled to surprise and play in 3D. Family members frequently interrupt our movement in following Mofizur Rahman with voices that occur behind us as we move forward, causing audiences to turn around, a feat that is unique to VR com-

pared to 2D, and which is not taken advantage of by static-scene VR refugee films. We also used only original voices of the refugees with subtitles placed at the location of their speaking to heighten the immersion with spatial audio (Fig. 6). We used music improvised by Rohingya musician Takir, recorded by the group Music in Exile, to give a genuine voice to Rohingya musical creative roots, as opposed to Western traditions. The resulting production is filled with Rohingya initiative, collaboration, and influence.



Figure 6: Audio and spatial dynamism. (Top) Following a player with 360 camera during play while he chases the ball, as if audience is also chasing the ball. (Bottom) Subtitle coupled to place in the environment where voice should emanate or point towards.

### Story Experience

The audience arrives in Balukhali on a jeep and realizes that it's a dynamic immersive experience, because she is in a moving vehicle throughout. At the family hut, Mofizur Rahman introduces himself, poking his head in from the window, and gives her a tour. The footage is shot by Mofizur holding the 360 camera. The tour begins outside the window overlooking the landscape and brings the audience into the shack. The music of Rohingya by Takir plays in the background, as recorded by Music in Exile. Mofizur dictates the terms of viewing, going fast at times and slow at others, making the experience spontaneous for the viewer, who feels as if her hands are led by the boy. The tour ends in the living room, where the family gathers (Fig. 7). The scene changes from a 360 video to a 3D scene where the viewer can move around and interact. When the viewer gets close to a family member she triggers conversations (Fig. 8). Each family member has a recorded voice in Rohingya language from the interview, with English subtitles. The words give her clues about family life far from their native homes. When you approach Ehsan, he says "during Ramadan whenever I sit to pray, I pray for my daughter, for her soul; I couldn't give her water when she died."



Figure 7: Storyboard of VR experience (part one). Scenes 4-5 contain interactive elements (people, items) rest are 360 video.



Figure 8: Storyboard of VR experience (part two). All scenes are 360 video, but scenes 1,2,3,5 have dynamic camera moves.

Figure 9: Storyboard of VR experience (part three). Conclusion of VR experience consists of camera passing amongst the children.

After talking to 3 family members, the scene moves to the kitchen, where Ameena is making preparations. Here, when items are collided with, Ameena narrates what the item means to her and Shamima. When you touch the pot, Ameena says in Rohingya “when we left Myanmar we could only bring our pot with us, it’s ancestral memory; inside is Shamima’s favorite food Semai that we made together.” After interacting with at 3 items, the scene shifts to Mofizur Rahman, who takes the viewer out of the house to show you around the village (Fig. 8). As we look from above, Mofizur talks during his tour about how each location you see is like his home in Patiya Para, Myanmar. When we reach the football field, Mofizur is reminded of how they would tease Shamima by passing the ball around. Triggered by this memory, the scene becomes a dynamic scene, where the friends play chasing the ball. The audience runs after the child chasing the ball as others pass the ball around. We realize that Mofizur is emulating his sister chasing after the ball, because he would pant her name.

After playing, Mofizur takes us back home by a different way across a bridge. As we walk beside the children, we can talk to them by triggering. They each know Shamima in their own way, and talks about what she did back home, and what home means. When back in the hut children pass the camera around as the viewer gets a closeup of each family member exchanging hugs and kisses with the viewpoint that shows their affection (Fig. 9). The audience realizes she is now representing Shamima to the family because they are all hugging the audience with salutations reminiscent of what they said to Shamima. The audience has gathered what’s known about Shamima in this journey, and has come to represent her to the family. The scene is shot collaboratively so that children can move the camera in the direction they deem personal to them. After the hugs, Mofizur gets the last kiss. He takes the camera that is the audience and, once the room clears, puts the camera away, as if he is putting Shamima away as well. The camera (and thus the audience) is put inside the blankets and the VR scene closes like a curtain to black, just as the Rohingya music finishes. SHAMIMA as a memory has been kept in this VR experience and it’s now time to let her go back.

## Bibliography

- [1] Sun Joo (Grace) Ahn, Amanda Minh Tran Le, and Jeremy Bailenson. 2013. The Effect of Embodied Experiences on Self-Other Merging, Attitude, and Helping Behavior. *Media Psychology* 16, 1 (January 2013), 7–38.
- [2] A. K. M. Ahsan Ullah. 2016. Rohingya Crisis in Myanmar: Seeking Justice for the “Stateless.” *Journal of Contemporary Criminal Justice* 32, 3 (August 2016), 285–301.
- [3] Gabo Arora and Chris Milk. 2015. *Waves of Grace*. VRSE: USA.
- [4] Gabo Arora and A Palitz. 2016. *My Mother’s Wing*. VRSE Within: USA.
- [5] T Cherim. 2018. *Meet the Soldier*. Q42 Hack the Planet: USA.
- [6] Linda A Durnell. 2018. Emotional Reaction of Experiencing Crisis in Virtual Reality (VR)/360°. Fielding Graduate University.
- [7] L. L. Eberhardt and J. M. Thomas. 1991. Designing Environmental Field Studies. *Ecological Monographs* 61, 1 (1991), 53–73.
- [8] Özgür Güreker and Alina Kasulke. 2018. *Does Virtual Reality Increase Charitable Giving? An Experimental Study*. Social Science Research Network, Rochester, NY.
- [9] Herrera Fernanda, Bailenson Jeremy, Weisz Erika, Ogle Elise, and Zaki Jamil. 2018. Building long-term empathy: A large-scale comparison of traditional and virtual reality perspective-taking. *PLOS ONE* 13, 10 (October 2018), e0204494.
- [10] Khaled Hosseini. 2017. *Sea Prayer: a 360 story inspired by refugee Alan Kurdi*. The Guardian: UK.
- [11] I Ismail and B Soloman. 2015. *The Displaced*. New York Times: USA.
- [12] Sarah Jones and Steve Dawkins. 2018. Walking in someone else’s shoes: creating empathy in the practice of immersive film. *Media Practice and Education* 19, 3 (September 2018), 298–312.
- [13] Hollis Kool. 2016. The Ethics of Immersive Journalism: A rhetorical analysis of news storytelling with virtual reality technology. *Intersect: The Stanford Journal of Science, Technology, and Society* 9, 3 (June 2016).
- [14] V Mickute and E Ghorbiah. 2017. *I am Rohingya*. ContrastVR: Bangladesh.
- [15] Chris Milk, Gabo Arora, and B Pousman. 2015. *Clouds Over Sidra*. VRSE: Switzerland.
- [16] Abul Hasnat Milton, Mijanur Rahman, Sumaira Hussain, Charulata Jindal, Sushmita Choudhury, Shahnaz Akter, Shahana Ferdousi, Tafzila Akter Mouly, John Hall, and Jimmy T. Efird. 2017. Trapped in Statelessness: Rohingya Refugees in Bangladesh. *International Journal of Environmental Research and Public Health* 14, 8 (August 2017), 942.
- [17] Utpala Rahman. 2010. The Rohingya Refugee: A Security Dilemma for Bangladesh. *Journal of Immigrant & Refugee Studies* 8, 2 (May 2010), 233–239.
- [18] Nicola S. Schutte and Emma J. Stilianović. 2017. Facilitating empathy through virtual reality. *Motiv Emot* 41, 6 (December 2017), 708–712.
- [19] Donghee Shin. 2018. Empathy and embodied experience in virtual environment: To what extent can virtual reality stimulate empathy and embodied experience? *Computers in Human Behavior* 78, (January 2018), 64–73.
- [20] Takashi Torisu. 2016. To what extent can virtual reality and machines stimulate empathy? | Interactive Architecture Lab. *UCL Interactive Architecture Lab*.
- [21] Lana Wong. 1999. *Shootback: Photos by Kids in Nairobi Slums*. Harry N. Abrams.
- [22] Y Zine. 2018. *I am Rohingya: A Genocide in Four Acts*. Innerspeak Media: Bangladesh.