



Political Crystals: Numinous Hashtags

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May 8, 2019

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Abstract

This paper presents and critically discusses the installation “Political Crystals: Numinous Hashtags” (2018) – a poetic exploration of the ironic numinous aspects of Brazilian 2018 presidential elections. Combining parametric modeling generative strategies for data visualization with digital fabrication, the work includes the algorithmic design of a series of geometrically intricate models using as raw data Twitter APIs to perform sequential data analysis and conversions having as the Search phrase hashtags related to Brazilian 2018 presidential elections Twitted from defined geolocation. From one perspective, the 3D shapes can be seen as aggressive and sharp materialization of online hashtags' wars that includes metadata tags. From another perspective, the translucent 3D shapes and its sophisticated data-based generative modeling evoke sublime and numinous aspects of natural crystal cluster such as quartz crystals while hiding the dramatic force of a manipulated faithful army in spreading hate discourses against minorities, defending a populism that returns to its fascist origins in Latin America.

Keywords

Data Visualization, Hashtag wars, Twitter, Brazil Presidential Elections, Social Media, Assembly of God, trolls, bots, Political Crystals, Silicon Valley, Digital Fabrication, Altered Reality, Virtual Reality, Digital Fabrication, Parametric Design, Morphogenetic Design, Algorithmic Design.

Introduction

Considering its relation to ISEA 2019 major topic, “Political Crystals: Numinous Hashtags” (2018) explores computational aesthetics from data visualization considering noise and sequential data conversions in parametric 3D modeling environment as the main morphogenetic strategy embedded in its poetics. The work navigates research fields such as Computer Graphics, Socio-Technical Systems, Data Science, Complex Network, Data Visualization and Analysis and Computational Aesthetics in a transversal move that incorporates Digital Fabrication and Altered Reality strategies for its ultimate materialization as an art piece - as a contemplative invitation for critically consider the challenging political situation in Brazil dramatically depicted and offered as a superposed and conflicting immersive environment.

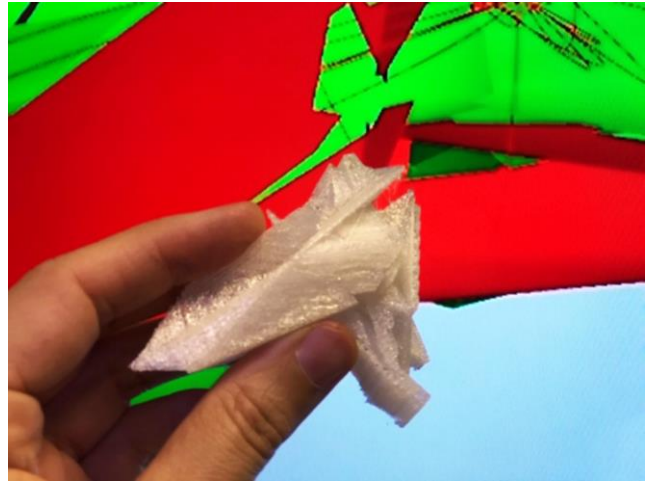


Figure 1. Political Crystals: Numinous Hashtags (2018) 3D printed complex geometry generated using hashtag #EleNãO (#NotHim) twitted by users in the city of Fortaleza (-3.718333, -38.542778) November 2018 as the Search phrase for accessing Twitter APIs. 3D printer filament color: natural PLA (no pigments) Image by the author.

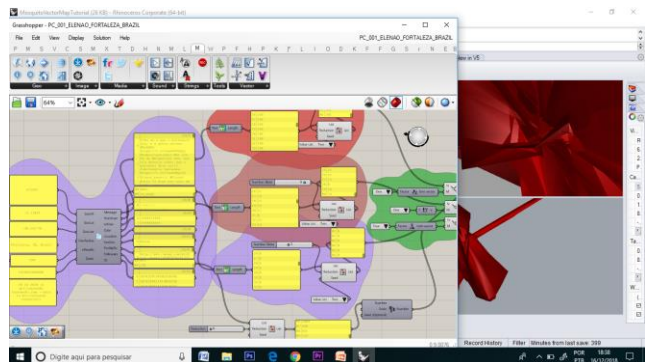


Figure 2. Political Crystals: Numinous Hashtags (2018) Grasshopper graphical algorithm editor script superposed to Rhinoceros 3D interface where the generated shape is visualized. Computer screenshot by the author

Using a plug-in suite for the Grasshopper graphical algorithm editor integrated with Rhinoceros 3D modeling tools that allows extracting location, profiles, images and messages from social media platforms such as Facebook and Twitter, a scrip is designed to derive complex geometry

from data translated into a network of points in space (x, y and z axes). Time is an additional dimension since the choice for using Twitter data tracking specific hashtags from a given search allows navigating a stream of events imprinted in short messages that cannot exceed 280 characters.

Numinous Hashtags

NUMINOUS (adjective) Having a strong religious or spiritual quality; indicating or suggesting the presence of a divinity. id 17th century: from Latin *numen*, *numin-* ‘divine will’ + *-ous*. [1]

Ishaan Tharoor, Washington Post columnist, who was a senior editor at Time magazine, opens his article for World View on September 21 with the following affirmation – “We’re entering the run-up to perhaps the most important election in the Western Hemisphere this year” [1] considering Brazilians were about to elect in 2018 new governors and legislatures in each of its 27 states; all members of the lower house of Congress, around two-thirds of the Senate and a new president.

The spirituous words choices of the columnist picture the former army captain who ended up being elected as the next president of Brazil, as someone who like Trump, has “[...] marshaled widespread disaffection to build a viral, anti-establishment movement” and promises sweeping, bludgeoning reform [...] while pandering to a socially conservative base of voters, particularly an increasingly influential bloc of evangelical Christians. Tharoor quotes the considerations of professor Federico Finchelstein, a historian at the New School, who said that the Brazilian former army captain “[...] represents a new brand of populism in Latin America, one that returns to its fascist origins across the world [...]” and his “[...] rise should serve as a reminder that we are experiencing a worldwide crisis of democracy, one not limited to Trumpism or the rise of the extreme right in Europe.” [2]

Adding a seemingly surrealist layer to this conversation we propose as part of an artistic exercise to ironically and critically highlight the numinous aspects of Brazilian presidential elections. Though the former army captain is Catholic, he maintains close links to Brazil’s powerful Evangelical movement – he attends an Evangelical church and his wife and sons are both evangelicals. Before the elections, sixty-six percent of self-identified Evangelicals said they were considering vote for him and almost 50 percent of the Brazilian Catholics. Brazil had been under military rule since 1964, when a coup brought down the democratically-elected president experiencing a fast economic expansion while critics of the regime went into exile and opposition faced all kinds of violence, including torture, censorship and death. As Chayenne Polimédio (the deputy director of the political reform program at New America) points out in an article published in The Atlantic GLOBAL on January 24, 2018 [3], under the dictatorship, Brazil’s evangelical community

largely stayed out of politics. Nevertheless, as the dictatorship crumbled, Brazil’s evangelicals came to recognize their new strength considering, as Polimédio reaffirms [3], democracy as a “numbers game” while growing their army of the faithful. It was in 1985, at a gathering in Anápolis in the rural state of Goiás, that “[...] the leaders of the Assembly of God, a popular evangelical church, announced they would begin endorsing and supporting candidates to run for office and thus be part of the “Constituent Assembly” which would write a new constitution for Brazil.” [3] The Assembly of God, founded in 1911, with this organized participation in politics sets up the beginning of a new era – in the following years, its donations to the Christian Social Party (PSC) fed up and invigorate church’s political enterprises. As Chayenne Polimédio underlines, in May 2016, the same month former Brazilian President Dilma Roussef was impeached, the next elected president was in Jordan and on May 12 a prominent leader of the Assembly of God and the head of the Christian Social Party, baptized him in the Jordan River. Polimédio considers [3] this was his most important act in formalizing his relationship with Evangelicals – a relationship he spent the early part of this decade cultivating.

Hashtags’ Wars

In an analysis by Yoni Heisler for Boy Genius Report (BGR) on Twitter’s decision in changing the most defining feature of the service – brevity –, the main concern is considered to be that “Twitter timelines would morph from easily digestible tidbits of information into an unreadable litany of screeds.” [4] Nevertheless, according to Heisler [4] in a conference on February 2018, Twitter CEO Jack Dorsey said that as an immediate impact of the decision, the percentage of users who abandon tweets has declined while overall user engagement has increased. The decision more than an experiment, is a strategic move. Despite a year after Twitter doubled its character limit data shows that users are “[...] being more polite, using fewer abbreviations, and replying to more tweets” [5] the social media was the stage for a hashtags’ war, feed and influenced by pervasive armies of troll and bots infiltrated in each fraction of the Web territory delineating the most nefarious face of neoliberal political enterprises – a mask that hides together religious, military, far-right populists and Nazis as the vivid expressions of the genetic code of an era of political aberrations. From this mechanism an ex-paratrooper, pro-gun and torture, populist, hostile to LGBT, women, African descendents and indigenous communities and Brazilians religious inclination to syncretism was elected the next president of Brazil. The pretended main character in this pulp magazines’ plot is the one who, according to Professor Monica de Bolle, cited by Mayra Rodriguez Valladares [6] is making markets happy because market participants think that he will be market friendly no matter “[...] the military was very interventionist. They got policies wrong for 20 years. Think of the hyperinflation. Their record was not good.” [6]

140 characters and no Nazis?

The troll and bots versus humanity battlefield was recently accurately depicted in an event reported and analyzed by Austin Carr and Harry McCracken for Fast Company published online on April 2018 – when “Yair Rosenberg wanted to troll the trolls.” [7] According to the columnists, the senior writer for Jewish-focused news-and-culture website Tablet Magazine, who became a leading target of anti-Semitic Twitter users during 2016 U.S. presidential campaign, was gnawed by a type of Twitter troll who poses as minorities using stolen photos of real people and then infiltrating high-profile conversations to infect and influence their tonic. As Rosenberg observes, according to Carr and McCracken [7] “Unsuspecting readers would see this guy who looks like an Orthodox Jew or a Muslim woman saying something basically offensive,” he explains. “So they think, Oh, Muslims are religious. Jews are religious. And they are horrifically offensive people.” [7] As Rosenberg decided to fight back creating an automated Twitter bot called Imposter Buster (starting on December 2016) inserting itself into the same Twitter threads and politely exposing the trolls he was attacked by racists who reported him to Twitter and the company reaction was to suspend his the bot for spammy behavior. Rosenberg, with assistance of the Anti-Defamation League got that decision reversed in 2018, despite the targets continued to file harassment reports, and Twitter on December 2017, once again, blacklisted Imposter Buster without giving a direct explanation to the user giving the company the “[...] racists a win by technical knockout.” [7] The columnists point out that,

“For all the ways in which the Imposter Buster saga is unique, it’s also symptomatic of larger issues that have long bedeviled Twitter: abuse, the weaponizing of anonymity, bot wars, and slow-motion decision making by the people running a real-time platform. These problems have only intensified since Donald Trump became president and chose Twitter as his primary mouthpiece. The platform is now the world’s principal venue for politics and outrage, culture and conversation—the home for both #MAGA and #MeToo.” [7]

This perverse mechanism that has helped improve the company’s fortunes is apparently considered as part of Twitter’s effort and commitment in making it safer for its users. In a moment in which social media platforms are systematically being corrupted for evil intentions Facebook and Google have come under heightened scrutiny since the U.S. presidential election events that revealed how their platforms is used to manipulate citizens’ opinions and directing choices and actions. If a few years ago Alex Macgillivray, first general counsel who later served as deputy CTO in the Obama administration, said, according to Carr and McCracken [7] “Let the tweets flow,” now we must assume it is proved naïve – the commitment to free speech opened the door for the

platform to be “hijacked and weaponized” [7]. As a consequence of a sequence of recurrent naïve postures and lack of action, as mentioned by Carr and McCracken [7] the era of Silicon Valley self-policing can be close to give its last breath – “[...] lawmakers in Maryland, New York, and Washington are already working to regulate political ads on social networks,” Alex Macgillivray has mentioned [7].

Talking to Peter W. Singer and Emerson Brooking, authors of the recent “LikeWar: The Weaponization of Social Media”, Sean Illing, interviews writer for Vox who has taught politics and philosophy at a university and before that was a paramedic in the United States Air Force, asks why technology companies such as Twitter and Facebook have so far failed to take responsibility for their platforms. The authors observe that, by creating this powerful and easy to use tool of mass connection, it became the supreme media for absolutely every material and immaterial trade – “from commerce to news, and like everything else, it’s weaponized”. On the interview, the authors place the question if the Internet can be considered the most effective or powerful weapon, considering that in some cases “[...] it clearly has been. Some nations have used it to achieve the traditional goals of war without ever having to fire a bullet. And some nations, like Russia, get it in ways other nations, like America, don’t.” [8]

And finally we reach the point where I explain why I’m here writing an academic full paper without quoting texts from academia – the academia publishing system is slower than online frenetic news generators. Up to date, fast and furious, this is the reality we face. The choice here was a tentative of grasping the instant. The impression is that we were all teleported to an Ayn Rand’s universe nightmare where Silicon Valley geeks are some of the most powerful actors in war and politics controlling the platforms that factually set the battles’ rules. And so, here we are – belonging to mediated worlds were “[...] social media reduced everything to theater, where it’s all about performance and branding, and yet, on the other hand, it has raised the stakes and made it easier to spread actual violence and chaos across the globe.” [8]

Expanded Unconsciousness (?)

“We are living in a time of the transient hypothesis, the infinitely mobile point of view, the flexible, transformative text, in which a permissive paradox prevails and incompleteness is the form. We fly on the wings of aporia, where everything may be what it seems not to be, bathed in a negotiable semiosis.” [9]

At this point, I do recall the Greeks; and will quote academics. To ensure that consciousness prevails and to navigate this turbulent mode of existence a good help can be to go back in time and understand how the principles of logic shaped the Internet social media structure. Beyond cyber-

netics, crossing the Art of Memory [10] oceans, the language that builds this rhizomatic schizophrenic [11] panacea, from an absolutely synthetic code for a forkbomb [12] to sophisticated algorithms [13] – is essentially logic (logos) based – an entire universe modeled according to maieutics. And simply because of it, this giant complex system of communication can be seen and actually works as a sort of ‘Socratic machine’ [14]. If not from this basilar understanding, Roy Ascott will never risk affirming that “We are living in the time of the transient self, embodying the identity of ambiguity — actually multiple identities — acting in a variety of realities, which are themselves incomplete and generative”[9] additionally advocating “[...] This is perhaps the most hopeful time in our assumed evolutionary ascent, leading us beyond dumb sentience to an expanded consciousness.”[9]

Despite confused by the grey clouds of the political typhoon, forcing the most convicted optimistic to face the evil side of social media platforms, we have in our hands a worldwide platform for examination of concepts, ideas, some that seem to lack any concrete definition – similarly to key moral concepts at Socrates or Plato’s time as the virtues of temperance and justice. Such a powerful and pervasive platform, far beyond privileging far-right political groups, can potentially exponentially run superposed examinations challenging an indefinite list of beliefs of the interlocutors – Twitter and Facebook hordes of users –, bringing out inadequacies and inconsistencies in their beliefs, recurrently resulting in aporia and potentially leading to the emergence of consciousness from doubting and unavoidable continuous questioning.

Political Crystals

“Political Crystals: Numinous Hashtags” (2018) explores critically in its poetics the religious and ethical implications of the recent Brazilian presidential elections. The dubious posture of Social Media companies’ executives such as Twitter and Facebook in dealing with the fact a media that has deeply revolutionized human socialization from eating, traveling, dating, to business, now drastically reshapes and potentiate the dark side of politics, terrorism and war all around the globe. Ingrained in this nefarious mechanism effective strategies to spread discourses de-signed to convince a massive vulnerable ‘audience’ using religion, ethics and security and order – like a ‘dialectic virus’ – spreads to every corner of our World Wide Web. One of the problems is that, as observed by Emerson T. Brooking and P.W. Singer in a article on The Atlantic Daily from November 2016, “Social-media platforms reinforce “us versus them” narratives, expose vulnerable people to virulent ideologies, and inflame even long-dormant hatreds,” [15] leading to the emergence of colossal clouds of mass opinion that are at the moment difficult to predict and dissipate. As a reflection on the situation, The ‘political crystals’ works as metaphors encapsulating the dichotomy of the issue – translucent and elegantly

seducing in its intricate computer generated geometry, exhibiting its potentially dangerous sharpness derived from Twitter data parametric manipulation to be converted in points in virtual space.

Combining parametric modeling generative strategies for data visualization with digital fabrication the work integrates the generation of 10 small 3D printed ‘political crystals’. Each crystal is algorithmically generated using as raw data (input) in a Grasshopper script Twitter APIs accessed by having as the Search Phrase hashtags #EleNão (#NotHim) and #EleSim (#YesHim) related to Brazilian 2018 presidential elections in each region largest city. Brazil has a high level of urbanization: 82 out of every 100 Brazilians live in cities. The criteria used by the IBGE (Brazilian Institute of Geography and Statistics) geopolitically divided the country into 5 (five) regions. Each region is composed of three or more states. North, 17.7 million – largest city Manaus, Northeast 56.9 million – largest cities Salvador and Fortaleza, Central-West 15.6 million – largest city Brasília, Southeast 86.3 million – largest cities São Paulo, Rio de Janeiro e Belo Horizonte, South 29.4 million – largest city Curitiba. Our choice considering the 2018 presidential elections result was to access Twitter APIs from the largest cities of the country belonging to each one of the regions. According to most recent IBGE available data, the list of 10 largest cities in Brazil include São Paulo 12.106.920, Rio de Janeiro 6.520.266, Brasília 3.039.444, Salvador 2.953.986, Fortaleza 2.627.482, Belo Horizonte 2.523.794, Manaus 2.130.264, Curitiba 1.908.359, Recife 1.633.697, Porto Alegre 1.484.94.

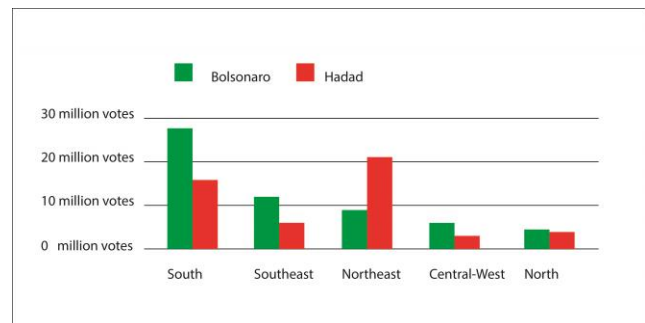


Figure 3. 2018 Brazil Presidential elections votes by region. Final result: Jair Bolsonaro (PSL) 55,13% and Fernando Haddad 44,87%. Chart by the author using BBC news [16] charts as a reference.



Figure 4. BBC News [16] Map showing 2018 Brazil Presidential elections votes by state: Map shows Bolsonaro (green) performance and Haddad (red) in the states - lighter colors indicate tighter win. Source: BBC news [16] charts as a reference.

The choice for the installation was to select the largest cities of the country by region considering having a representative sample of Twitter’s users behavior concerning Twitts that includes two opposite hashtags that emphatically express the bipolarity observed in the results. In order to filter Twitter APIs geographically, the additional input must be the latitude and longitude coordinates of each one of the chosen cities:

Manaus	-3.1, -60.016667
Fortaleza	-3.718333, -38.542778
Salvador	-12.971111, -38.51083
Belo Horizonte	-19.816944, -43.955833
São Paulo	-23.550278, -46.633889
Rio de Janeiro	-22.902778, -43.207778
Curitiba	-25.429722, -49.271944
Porto Alegre	-30.032778, -51.23
Brasília	-15.793889, -47.882778
Recife	-8.050000, -34.900002

Date can be used as an input, considering the functionalities of the chosen component that access Twitter APIs and must be converted to milliseconds using a date to milliseconds converter.

EleNão(NotHim) versus #EleSim (YesHim)

Raw data is converted using a sequence of components (Figure 2) – from characters to numbers lists to points in x, y and z axes – building the spatial network from which an intricate and interlaced continuous surface is generated, and converted into a mesh. A smoothed representation of the

mesh is calculated, not increasing the face count and allowing volume enhance specifications.

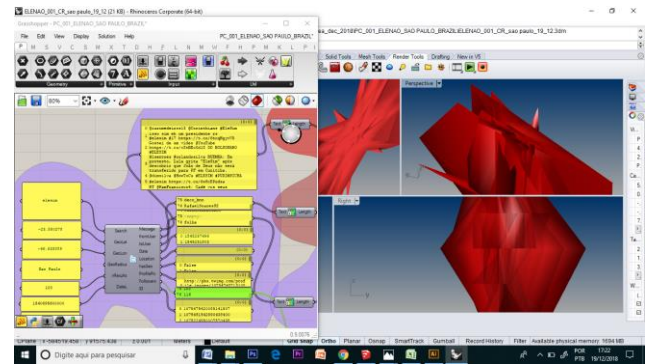


Figure 5. Political Crystals: Numinous Hashtags (2018) 3D model generated from Twitter APIs accessed using the hashtag #EleSim (#YesHim) twitted from Sao Paulo -23.550278, -46.633889; Grasshopper graphical algorithm editor script superposed to Rhinoceros 3D interface where the generated shape is visualized. Computer screenshot by the author

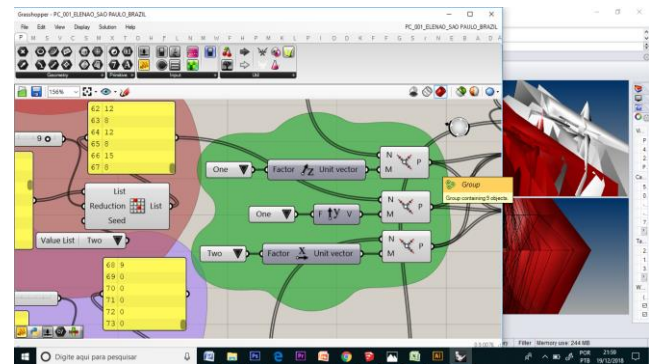


Figure 6. Political Crystals: Numinous Hashtags (2018) 3D model generated from Twitter APIs accessed using the hashtag #EleSim (#YesHim) twitted from Sao Paulo -23.550278, -46.633889; Grasshopper graphical algorithm editor script showing the final conversion from Twitter raw data (message, fromUser, toUser, Followers). Computer screenshot by the author

For the algorithmic generation of the final 3D geometry, ‘Message’ is the input for points in the unit vector Z, ‘fromUser’ the input for points in the unit vector Y, Followers the input for points in the unit vector X. Additionally, ‘Followers’ is used as the input to interpolate samples in the generation of the surface from the point in X, Y and Z.

The resultant geometry is baked and a material is applied in Rhinoceros 3D. After a sequence of tests, the choice for applying Water as the Rhino Material File was made due the subtleties in transparency nuances in the final model. The model is exported in two formats – .stl for 3D print and .obj with the .mtl together in a .zip file for VR (Virtual Reality) immersive visualization.

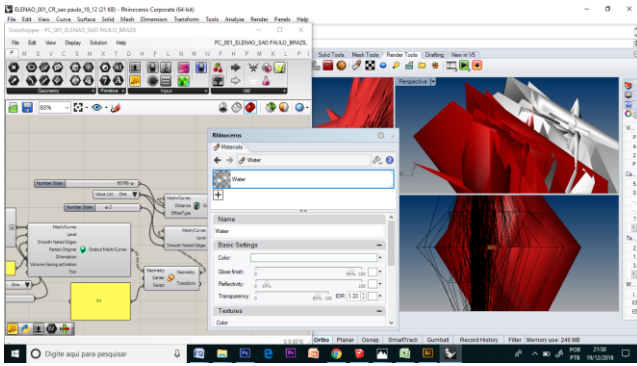


Figure 7. Political Crystals: Numinous Hashtags (2018) 3D model generated from Twitter APIs accessed using the hashtag #EleSim (#YesHim) twitted from Sao Paulo -23.550278, -46.633889; application of material (water) in Rhinoceros 3D to give translucency to the shape visualization. Computer screenshot by the author

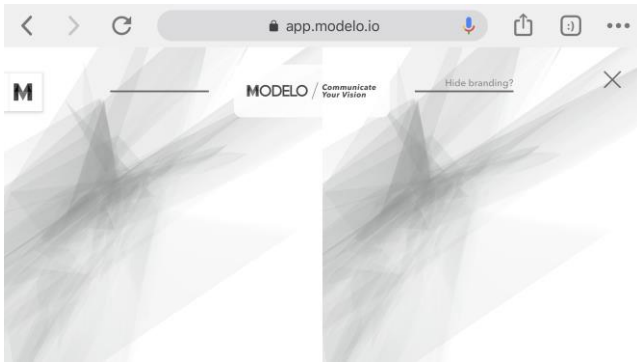


Figure 8. Political Crystals: Numinous Hashtags (2018) 3D model generated from Twitter APIs accessed using the hashtag #EleSim (#YesHim) twitted from Sao Paulo -23.550278, -46.633889 and exported as .obj with .mtl for VR immersive visualization. Smartphone screenshot by the author.

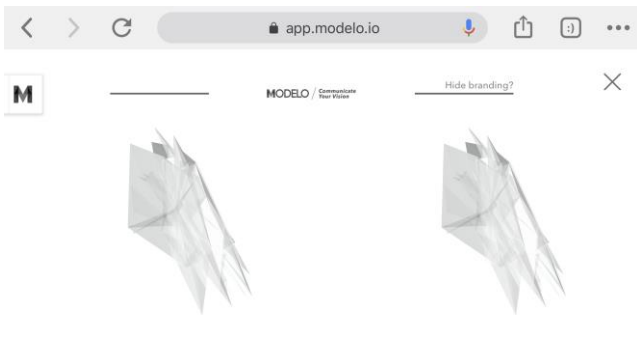


Figure 9. Political Crystals: Numinous Hashtags (2018) 3D model generated from Twitter APIs accessed using the hashtag #EleSim (#YesHim) twitted from Sao Paulo -23.550278, -46.633889 and exported as .obj with .mtl for VR immersive visualization. Smartphone screenshot by the author

Considering the artwork was not selected for ISEA 2019's juried exhibition, the small collection of 20 'political crystals' (10 crystals generated from #EleSim #YesHim hashtag and 10 from #EleNao #NotHim using tweets from the 10 largest cities in Brazil) will be shown at the oral presentation in two small wooden boxes.

Final Considerations

From one perspective, the 3D shapes can be seen as aggressive and sharp materialization of online hashtags' wars. From another perspective, the translucent 3D shapes and its sophisticated data based generative modeling evoke sublime and numinous aspects of natural crystal cluster such as quartz crystals, while hiding the dramatic force of a manipulated faithful army in spreading hate discourses against minorities, defending a populism that returns to its fascist origins in Latin America. The aesthetic reference to quartz is intentional. Pure quartz is transparent or translucent. Naturally occurring quartz crystals of extremely high purity, necessary for equipment used for growing silicon wafers in the semiconductor industry, are expensive and rare. The largest documented single crystal of quartz was found in Goiás, Brazil – right there in the region where back in 1985, at a gathering, the leaders of the Assembly of God announced they would begin endorsing and supporting candidates to run for office and thus be part of the Constituent Assembly who wrote the new constitution for the democratic Brazil.

Acknowledgements

The author would like to thank Erikson Queiroz Costa, a collaborator at the LIP – Lab for Innovation and Prototyping, who helped 3D printing the models.

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Roy Ascott Studio B.A. in Technoetic Arts in Shanghai in 2015, after one year (2013-2014) collaborating with the Art|Sci Center and Lab at UCLA in Los Angeles as a Fulbright Post-Doctoral Research Scholar in Arts. From 2009/2010 she was a Ph.D. researcher at the CAiiA node of the Planetary Collegium, University of Plymouth, UK, by the time she was a Ph.D. candidate at the University of Sao Paulo, and a member of Gilberto Prado’s art collective Poéticas Digitais. Her artistic and research interests converges in the exploration of consciousness and the self as emergences from local and nonlocal communication phenomena in macro, micro, molecular and subatomic scales.

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