DaDa Visualisation

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Abstract

Inspired by Tristan Tzara's DaDa poetry, in which the words of a newspaper article are randomly reassembled to create an original poem, DaDa Visualisation is a whimsical interactive artwork producing dynamic generative visualisations based on a catalogue of poems. This paper outlines the work and examines the key issues and ideas to which it responds. It defines data visualisation as a lens that is increasingly applied to all aspects of our lives, and while typically heralded as a revelatory scientific instrument it shows data-vis as a creative cultural form. Fundamentally, DaDa Visualisation is an irreverent celebration of our fascination with data and data graphics but also provides a valuable critical perspective, reminding us that data visualisations are neither benign nor impartial but the product of authorial agency.

Keywords

data, visualisation, generative, art, poetry

Introduction

A common mantra of today's networked society is that we are drowning in an ever increasing sea of data and the way to bring order and sense to this otherwise incomprehensible volume of information is through data visualisation. The mantra has evolved for good reason; the scale and rate of data generation is estimated at 2.5 quintillion bytes of data daily with over 90% of the world's data generated in the last two years. [1] The issue is not only quantity but the fact that much of the data is illegible in its raw state; our only way of appraising these data sources is through some kind of representation. Consequently, and as importantly, the rise in data production has seen a reciprocal increase in the incidence of data graphics, with data visualisation earning a privileged status in our data-centric culture. And as we become more familiar and literate with data and its graphical representation we are examining every aspect of our daily lives through the data lens. The rise of personal analytics and with it personal tracking devices, services and apps is just the latest example of our growing fascination with data collection and representation. It is from within this context that DaDa Visualisation emerges and it is to our insatiable appetite for data visualisation that it responds.

DaDa Visualisation

The title of the work is inspired by Tristan Tzara's DaDa poetry, in which the words of a newspaper article are randomly reassembled to create an original poem. Rather than newspaper articles, DaDa Visualisation treats poetry as a dataset for dynamic generative visualisations. The work consists of two distinct parts; the physical and the virtual. The physical component is a simple thermal receipt printer situated on a slender white plinth. [Fig.1] The virtual component is a web catalogue customised for mobile devices and presenting a series of poems contributed by notable Australian authors; Paul Hetherington, Lucy Dougan, Ross Gibson, and Jen Webb. [Fig.2] An audience member can peruse the poems, make a selection and see it transformed into a series of data graphics via the thermal printer.
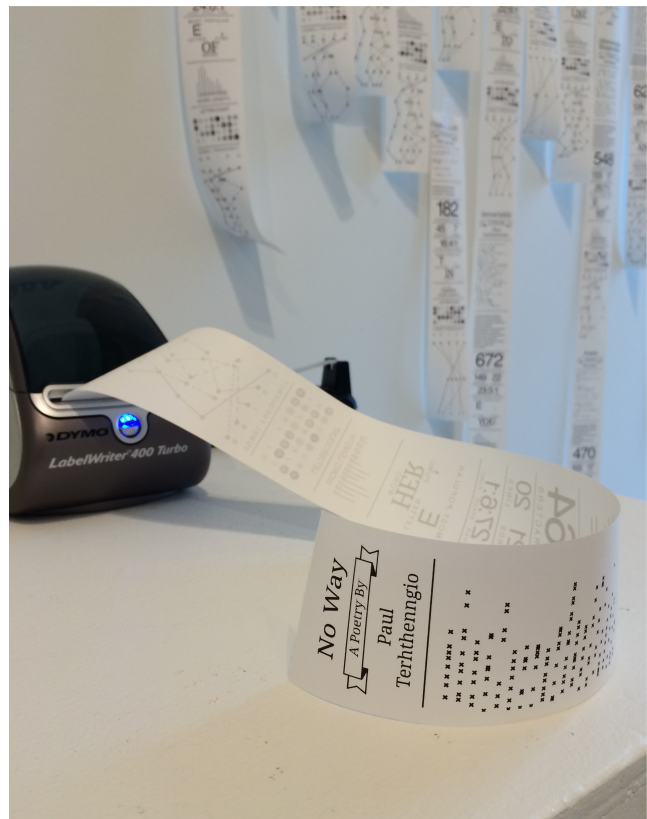

Figure 1. The title to DaDa Visualisation's catalogue of poems, designed for viewing on mobile devices.

The website is a modest production; the poems are laid out simply as per the authors' original compositions, the bold title typography and minimal colour scheme providing visual character - a direct reference to Tristian Tzara's "Bulletin DADA" of 1920 [2]. [Fig.3] Each poem is accompanied by a "DaDa Visify" icon which, when tapped/clicked, brings the thermal printer to life. After a moment's hesitation, the printer spews out a print 7cm wide and between 40-70cm in length. [Fig.1] Below a cryptic re-worded title at the top of the page, the print features a stream of graphics separated into vertical blocks by thin horizontal borders. [Fig.4] The blocks offer an assortment of different graphical approaches, most accompanied by a succinct descriptive label. The "Word Length" and "Vowel Frequency" blocks are the most recognisable as conventional graphs; Word Length is a simple bar chart and Vowel Frequency is a regular line graph. "Letter Count" is also of the graph variety but offers a less typical rendering with tonal density indicating the total count of each letter. A number of bold typographic blocks provide statistical summaries such as the total number of characters, words, and lines, as well as the most popular letter, punctuation and word. "Char : Space : Punc" indicates the relational ratios of characters, spaces, and punctuation. Finally, two pattern blocks are untitled and unexplained but their layout and spacing suggests a connection to the visual composition of the original text.
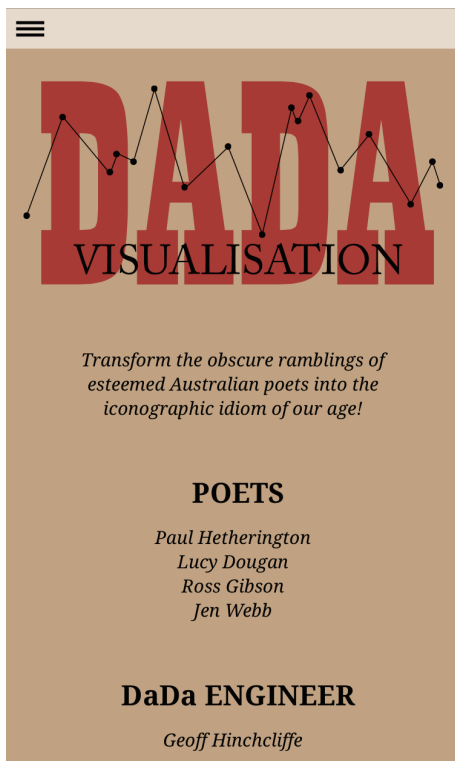

Figure 2. A poem in the process of being output from the thermal receipt printer.

Figure 3. Bottom left: "Lurk" by Ross Gibson displayed in the mobile web interface. Top right: "Bulletin DADA" by Tristian Tzara, 1920.

There is a playful enquiry driving the different graphical representations and a clear concern for the visual aesthetics: the banality of a letter count is converted into a beautiful mosaic of tonal discs; the irrelevant measure of vowel frequency is painted as an elegant intertwining structure of ligaments and joints; the abstract patterns of illegible letters and word blocks create stark graphic compositions revealing incidental rhythms of the original text. [Fig.5] But the most remarkable characteristic of the work is its subject-matter; written poems are an unlikely source for a data visualisation. In treating written poems as a data source DaDa Visualisation foregrounds our fetishistic relationship with data and its representation; its logic seems to be that if we can use data-vis to reveal new meaning about "big data" (the human genome, global warming, national census data), why not use its revelatory powers on poetry? Here data visualisation is a lens that can be applied to any source and increasingly the purpose of that application is aesthetic rather than practical. In this regard, DaDa Visualisation joins a rapidly expanding field of practice concerned with data visualisation as an aesthetic creative medium.

The field is represented by sites such as infosthetics.com and flowingdata.com, both of which use a blog format to report on works and events related to visualisation as a creative form and practice. It should be emphasised that the examples celebrated in sites such as these are firmly grounded in the science of data analysis as well as its aesthetic representation. Perhaps more than any other practitioner, Nicholas Felton has driven the development of data visualisation as an aesthetic lens. His "Feltron Annual Report" series, which present his own, often banal, personal data as beautifully crafted data graphics today exist as a distinct genre of infographic visualisation. [3] The significance of the works, initially viewed as humorous curiosities, continues to increase particularly with the immense growth in "personal analytics" and the "internet of things" - both of which are notable for their presence in our everyday lives. The everyday is a complex cultural context and one that demands very different aesthetic approaches to the office, lab or work site. [4]
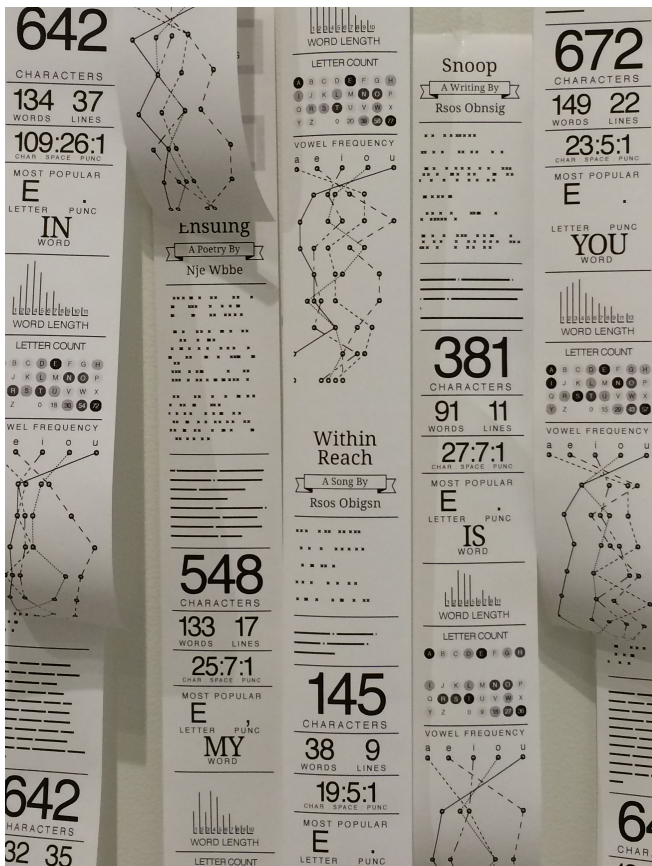

Figure 4. A collection of visualised poems.

Like others from this emerging field, DaDa Visualisation celebrates data-vis as a creative form but through its absurd production of charting written poems [Fig.4,5] it speaks to our obsession with data and to our fascination with seeing our reality quantified and charted. The dislocation between the screen-based text and the thermal printed graphics emphasises the black-box nature of data visualisation: data goes in, magic happens, and visualisations emerge. There is no option to interact or even witness the visualisation process. While somewhat oblique, the graphics are also entirely "accurate". They remind us that data visualisation is not an impartial scientific instrument but a complex cultural form; a form that we typically afford an abnormal authority.
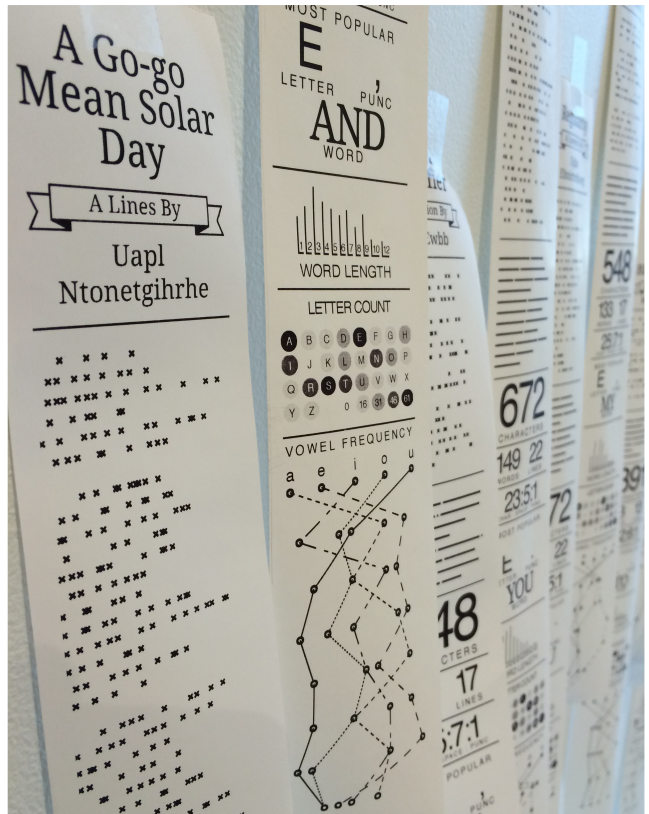

Figure 5. The title in the foreground is generated by replacing the original words with similar terms. The letters of the author are randomly reorganised to form the nonsensical name.

Data scientist, Pete Warden, draws our attention to this implicit trust stating that the *"wonderful thing about being a data scientist is that I get all of the credibility of genuine science, with none of the irritating peer review or reproducibility worries"*. [5] In the same post Warden cites various cases in which his own work has been used by journalists and social groups to substantiate spurious claims with no understanding of the quality of the data or process that generated the visualisation. Guardian data-journalist John Burn-Murdoch echoes Warden's concerns, citing the case of the Washington Post's *"Map of the world's most and least racially tolerant countries"* which enjoyed viral social media exposure and syndication by dozens of large media sites despite criticism from qualified experts regarding the methodology and data upon which the map was based. [6] Burn-Murdoch notes that comparatively, the criticisms had less than 1% of the social media exposure of the data map.

These examples point not only to the potential misuse of data visualisation but also to its persuasive power and our propensity to trust graphics without the same scrutiny we apply to text. Burn-Murdoch posits that this critical inability stems from education - while we are taught to critique text, *"data visualisations are overwhelmingly used simply as a medium of displaying final results"*. [7] With its "before and after" view of a poem, DaDa Visualisation questions the conclusivity of data charts and makes apparent the violence involved in the transformation of data to graphic form. It shows that all data graphics (accurate or not) are an abstraction, a performance of an original "text". And with its cryptic and poetic graphical renderings, DaDa Visualisation's approach to the performative is intentionally provocative, challenging common conceptions that utility and legibility should be prioritised over all other aesthetic concerns [8]. It ignores such obligations to a legible truth, instead focusing on visualisation as a medium that can question and entertain as well as inform.

Conclusion

While conventionally viewed as an instrumental form, data visualisation is increasingly being explored as a creative medium; a lens that can be applied to all manner of data and information. In its bid to render the poems of four notable Australian poets as data graphics, DaDa Visualisation reveals the absurdity of our efforts to see all aspects of our lives quantified and visualised. It reminds us that data visualisations are neither benign nor impartial, and are far from conclusive; they are products of an authorial process which is as much about the ingenuity of adaptation as it is about the accuracy of the form.

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Geoff Hinchcliffe heads up the Department of Media Arts & Graphic Design at the University of Canberra where he is a core member of the Digital Treasures research program within the Centre for Creative & Cultural Research. His practice-based research is concerned with generative design, interface aesthetics and data poetics. Samples of his creative work and associated ramblings can be found at gravitron.com.au