

# Sear

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## Abstract

Sear is a new media text delivery system that uses sculpture, custom software, and performance to hybridize conventional and asemic writing. This project is a research, fabrication, and writing endeavor that seeks first and foremost, to extend and augment a specific experiential moment in the act of reading, when persistent marks transition from non-language to language. The project also seeks to elicit in the viewer unique experiential moments that prompt one to question her or his perceptual impressions, and works toward investigating the various ontological states of inscription that exist between the graphic and the symbolic.

**CR Categories:** J.5 [Arts and Humanities]: Fine Arts; J.5 [Arts and Humanities]: Literature

**Keywords:** asemic writing; inscription; surface; laser; new media; mutable sculpture

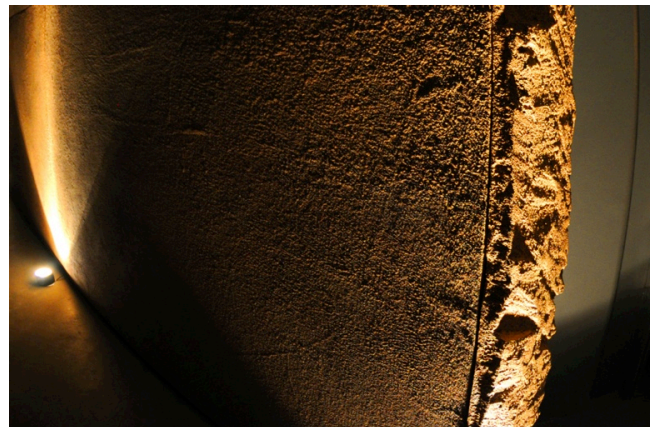
## Introduction

Whereas other language-driven, new media works may have fleeting instants that begin to explore boundary points of signification, Sear allows the viewer to experience extended periods of novel modes of reading and interpretation. Sear mixes asemic writing with traditional writing, as the content sometimes slips between and others times leaps back and forth from non-specific to legible. The underpinnings of this new media system of textual delivery -- one that morphs word and image -- is Sear's focus on materiality and the perceptual experience: about how certain materials and surfaces are perceived as devices of inscription and image generation. To do this, Sear couples new technologies (laser projection, custom software) with immutable materials (stone and stone-like surfaces) to investigate, creatively, textual materiality. While the project is not primarily concerned about the composition of text, this investigation does contemplate the different modes of composition for this text delivery system, so that the author is able to shift meaning more fluidly and with finer granularity than that afforded by the word, the letter, the stroke -- the archetypal or conventional atoms of expressivity in written language.

In this way, Sear seeks to rehearse the advent of writing itself (as the petrograph once did, preserving gestures of articulation from memory via markings on stone), but through a polemical instantiation using new media technologies. More specifically, the project considers questions that investigate what is at stake in the act of signification, when language driven work is delivered using seemingly static -- but in fact, very mutable -- physical substrates. How does meaning shift as graphemes slip between random mark, to patterned image, to letter and word, and back again? How does a reader's expectation of lasting permanence affect the reading of word and image when its state of being is made transient instead? The author was concerned about these and other questions that revealed the affordances of this specific combination of technologies and method of textual delivery, and the potential impact on the way we read and write literature delivered with new media systems.

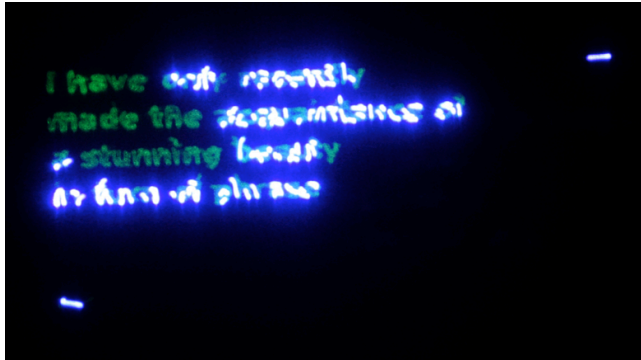
## 1 Sear: A Novel Method of Text Delivery

The Sear System incorporates a number of components and tools: an array of stone-like panels that can be installed in different configurations to provide a textured projection surface; custom software written in an open source programming language and integrated development environment called Processing; a number of industry standard digital tools such as Adobe Photoshop and Pangolin Beyond; and laser projection. We can organize these components into three categories: the sculptural surface, the hardware, and the software tools.



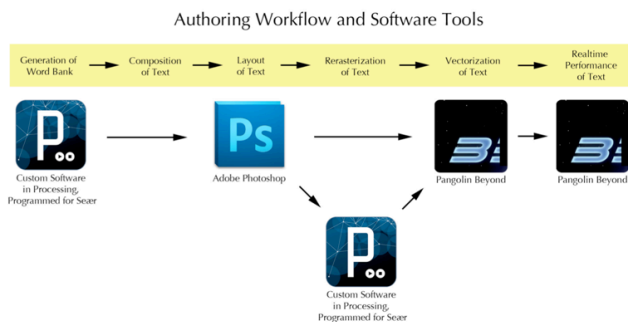
**Figure 1:** Detail, depicting the stone-like texture of the Sear sculpture

The sculptural surface was fashioned from extruded foam that was shaped, coated with sand, and then painted in multiple stages. In all, twelve front panels measuring six feet by four feet, along with six side panels measuring 4 feet by eight inches, were fabricated and mounted on canvas frames. Whereas the front panels provided a relatively flat, uniform surface on which text and image can be inscribed, the side panels were fabricated specifically to evoke association of naturally occurring stone. Seær's surface can be deployed as a sixteen foot by eighteen foot flat sculpture, or in many smaller three-dimensional configurations. Seær debuted with nine panels to form a twelve foot by twelve foot sculpture made to resemble a stone monument (see Figure 1).



**Figure 2:** 447nm laser beam activating the phosphorescent pigment

The top coat of the sculptural surface is impregnated with a phosphorescent pigment that glows when exposed to near-UV light, and can be actuated using light emitting hardware (see Figure 2). A 447nm laser beam, emitted from a projector unit and directed with 30K dual axis galvanometer based optical scanners, excites the pigment. The laser beam's movements can be finely controlled by a computer via the ILDA protocol (a control standard specified by the International Laser Display Association). The computer was connected to the laser projector unit using a proprietary hardware interface, the Flashback3 FB3-QS, which was designed specifically to work with prepackaged software specialized for controlling laser light shows.



**Figure 3:** Authoring Workflow and Software Tools

The software tools included a range of readily available payware as well as custom written software to enable various steps in the authoring workflow, illustrated in Figure 3. Custom software was programmed in Processing to search for words that are graphemically similar, e.g. the words “retrain” and “refrain.” After text has been composed for Seær, the writing is laid out in

Photoshop. Special attention was paid to the spatial arrangement of text so that when the words are being inscribed by the laser, certain letters (as in the letter “t” in “retrain”) overlap over those of previously inscribed words (over the letter “f” in “refrain”), essentially transmuting the word. Photoshop techniques for manipulating the overall value (how light or how dark) and creating shadow gradients were also employed to yield different outcomes when the text is later vectorized in the laser control software, Pangolin Beyond.

## 2 Composing for Seær

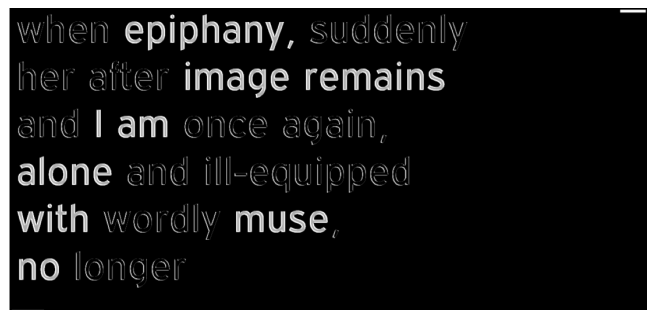
### 2.1 Mixing Asemic and Legible Writing

Writing for Seær necessitates composing text for transience, that the composed text and the related obfuscated markings will be perceptually distinguishable for only a short period of time. Additionally, because Seær permits the writer finer granularity in iterating through the various levels of legibility as part of a performance of inscription, the essence and thrust of a poem's meaning can be made to shift in trajectory, modulating the poem's meaning by way of modulating legibility. When writing for Seær, secondary and tertiary interpretations can be elicited by visually prejudicing certain words while emphasizing others, and maintaining line lengths through the use of placeholder markings (a practice referred to as greeking text). For instance, in one poem about a writer's love affair with ‘turn of phrase’, the last stanza acknowledges the unique reading experience of the viewer of Seær:

when epiphany, suddenly  
her after image remains  
and I am once again,  
alone and ill-equipped  
with wordly muse,  
no longer.

The stanza was visually composed with the following emphasis on certain words:

//// epiphany,////////  
//////// image remains  
/// I am/////////  
alone/////////  
with//////// muse/  
no////////



**Figure 4:** Photoshop techniques emphasize certain words in visual composition

The generated image in Figure 4 depicts the emphasis placed on certain words when it was laid out using Adobe Photoshop. The darker words, e.g. the words “when” and “suddenly,” become abstractions when displayed using Sear: unintelligible asemic markings that have no specific semantic substance. Three select moments in the range of possible Sear permutations are documented in Figures 5, 6 and 7.

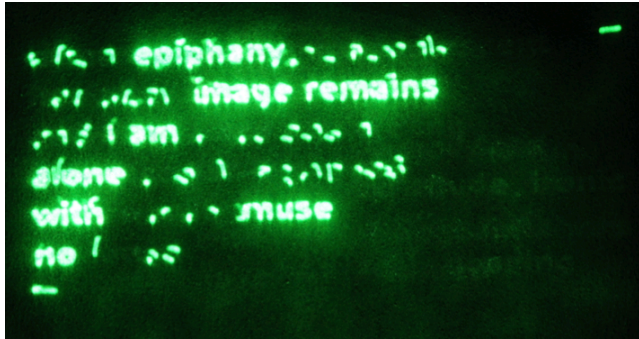


Figure 5: Asemic writing appears alongside clear and legible text

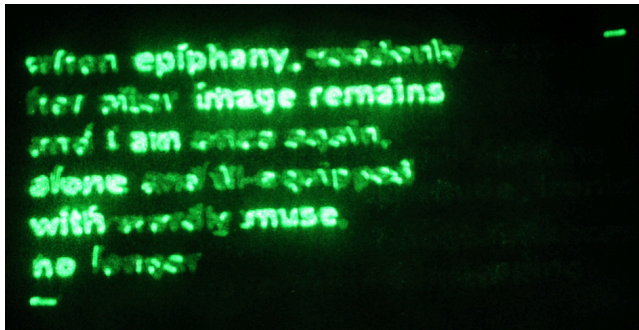


Figure 6: Random markings continue to obfuscate the prejudiced words

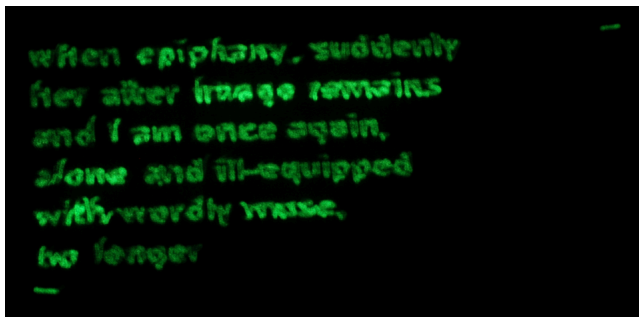


Figure 7: Prejudiced words are closer to legibility.

## 2.2 Graphically similar words

Words that are similar in the way that they are inscribed but whose meanings are remarkably different offer potential when composing for Sear. For instance, the letters “t” and “f” are typographically very similar, and the words “detection,” versus “defection,” have different meanings. As seed words, “detection” and “defection” are potentially compatible ideas for use in the same narrative or poem.

Word pairs that are presented side-by-side, such as:

ballot ballet

versus

ballet ballot

might depict a visual poesis as the letters “e” and “o” swap places in a typographic dance when presented through Sear. Other examples of graphemically similar words that demonstrate promise are depicted in Table 1.

Table 1: *samples of graphically similar words*

seed words	one-liners	transformations	2 and 3-word narratives
ample amble creaking breaking croaking sons eons cons sops sobs defer deter detection defection duels duets exited exited formal format fumbled tumbled jumbled herd nerd hard hero	banged hanged banker canker bakes cakes ballot ballet pallet ballot pale bale	atop stop atone alone stone slum alum ashes aches affluent effluent auction suction auspicious suspicious avocation evocation pegged bogged bagged	hearing nearing beating been peep pending bonding banding pill hill

The sample words in Table 1 were algorithmically harvested through custom written software programmed in Processing to sift through a 35,000-word lexicon for entries that are graphically alike.

## 2.3 Cross-sensory tropes and metaphors

The Sear system enables the use of figurative devices that cross sensory lines as well. The debut of Sear entailed performance of text that included patriotic allusions. Although no overt or literal reference to American symbolism in either the orally delivered prose or in the visually delivered writing

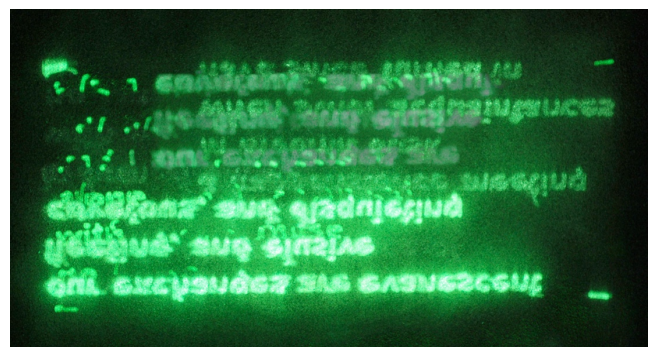


Figure 8: Viewers have reported seeing the U.S. Flag in the layered markings.

was made, viewers have reported seeing the U.S. flag in the layering of the text (between afterimages in their vision caused by the laser, as well as the phosphorescent afterimage on Sear’s sculptural surface), as simulated in Figure 8. This interpretation of visual phenomena was framed in part by the schema of

commemoration that was employed in the narrative. It is this confluence of factors -- the blending of asemic and legible text coupled with the viewer's memory of inscription that has already transpired -- that make Sear's combined use of phosphorescent after-images and laser inscription unique.

## 2.4 Geometric Transformations of Text

The geometric transformation of text, such as the scaling or rotation of graphemes (as in the use of upside-down numbers with letters) is, perhaps, not a technique that is entirely dissimilar from methods of composition already described above. However, while the mixing of inscrutable and legible inscription has already been discussed, what has not yet been considered is the mixing of transformed and non-transformed text. Text that remains entirely legible but is selectively transformed, or alternatively, text that can be read in another orientation (e.g., ambigrams) might be further extended with Sear's method of presentation. In this way, Sear enables the visual form to enact its content, creating moments when the visual-grammar and linguistic-grammar are inextricable.

## 2.5 Linguistic Evolution and Reader's Perception of Time

Sear's display system allows an intuitive depiction of linguistic evolution that relies on: a) the perception of fading text and the resultant expectation that the inscription is transient; b) the reader's memory of previously inscribed text; and c) the passage of time. For instance, the Filipino word "bundok," which means "mountain," is a colloquialism that refers to rural geography. The term "boondocks" is an American word with a similar meaning. Thus, the morphing of bundok to boondock in a narrative displayed through Sear might suggest a lingual relationship that can allude to the evolution of the word as a result of the American military presence of the Philippines in the 20th century without explicitly referencing it. Similarly, another example is a work that morphs between the three sets of markings found on the Rosetta stone using the display processes of the Sear system, visually depicting the grapheme relationships between the three writing systems represented on this stone.

## 3 Conclusion

Through a series of literary works using the Sear system, the continued exploration of inscription surfaces and the impact that the materiality of these surfaces has on signification is a worthwhile endeavor. Such exploration greatly informs the processes and practice of writing and reading using digital media. The dimension of permanence versus transience will serve a more prominent role in future forms of textual delivery: in the way that the content of e-newspapers might change as you unfold it, or perhaps when the walls and the windows of residences might be one and the same -- displaying text at some moments and then permitting inhabitants to view the environment outside in other moments -- the reading of hybrid traditional and asemic writing systems will become commonplace and unremarkable. It will become unremarkable because such inscription surfaces will be regarded as more inherently mutable than they are perceived to be today. As a result, the perceived transience of text will become a more prominent dimension in both the acts of composition and writing of text for such new media delivery systems.

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