How the Computer Stopped Worrying & Learned to Design?

I asked that question in my 2003 MFA thesis proposal at RISD. It was controversial in the room. Twenty-three years later, the entire industry is asking it.

The systems keep changing. The division of labor never has:

1999 Structured Martha Stewart's editorial archive so a natural-language engine could answer questions conversationally, years before "conversational UI" had a name.

2003 The proposal's own engines shipped as Dynamic Mapping, a grant-funded generative system. Published in *Making & Breaking the Grid*, the textbook of the grid tradition the proposal claimed as lineage, filed in the chapter on breaking it.

2026 Eight open-source packages on npm and counting, a daily multi-agent AI engineering practice, and a machine critic in progress, trained on three decades of my own judgment.

Systems generate.
Judgment supplied.
Then, now, always.

danniel**gaidula**MFA

CREATIVE TECHNOLOGIST + DESIGN LEADER

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Systemic authorship and iteration combined with the designer's intuition and editorial skills has the potential to yield powerful design solutions.

MFA thesis proposal, May 16, 2003
reproduced in the appendix

The sentences used to created the poems in this book, were taken from ten pages of text from the script of the movie, *Almost Famous*. These ten pages were the basis of an earlier book which portrayed their narrative visually while including the full text.

For this book, one sentence was selected from each of the five spreads from this earlier work. Each sentence was then used to derive a number of poems equal to the numbers of words in the sentence. The poems themselves were composed using the following system.

1. Each word in the sentence is numbered starting from zero.

2. The total number of lines composed is equal to the number of words in the sentence. Punctuation is maintained with the word it follows.

3. The starting word for composition is chosen at random.

4. The total words per line is equal to the remainder of the current word divided by the current line number. If the result is zero, the current word is chosen and either the word to its right or left is chosen as the starting word for the next line.

5. A 50:50 choice is made to take the total words for the current line from left to right or right to left of the current word.

6. The last word chosen in step 5 becomes the current word and steps 4–6 are repeated until the total number of lines has been composed.

As an example, the calculations used to compose the poem on page 46 are shown to the right.

Danniel Gaidula, 2003

COMPOSITION CALCULATIONS

Starting word: 4

LINE 1 total words: 0
4÷1 = 4 R 0
Word 4 selected
from right to left

LINE 2 total words: 1
3 ÷ 2 = 1 R 1
Word 2 selected
from right to left

LINE 3 total words: 1
1 ÷ 3 = 0 R 1
Word 2 selected
from left to right

LINE 4 total words: 3
3 ÷ 4 = 0 R 3
Words 4, 5, 0 selected
from left to right

LINE 5 total words: 1
1 ÷ 5 = 0 R 1
Word 2 selected
from left to right

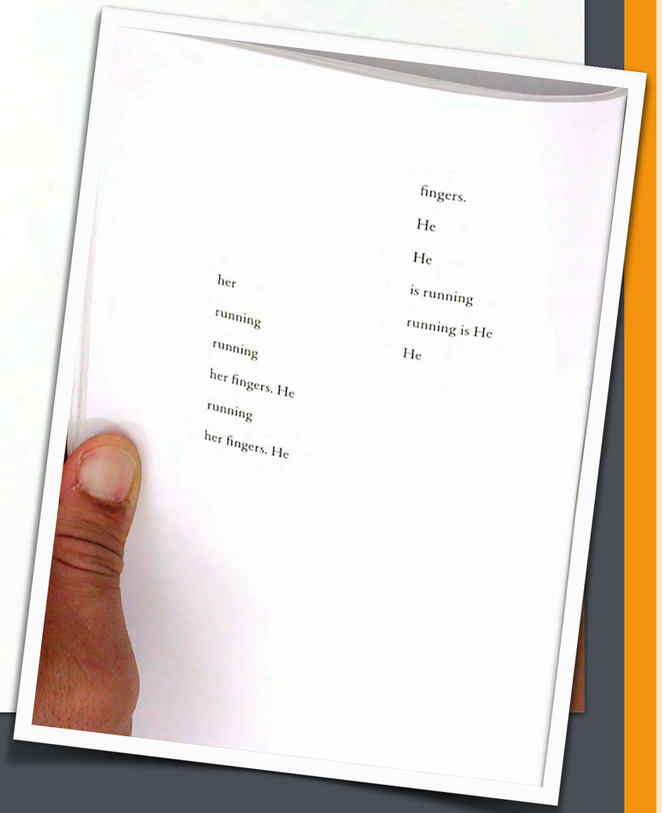
LINE 6 total words: 3
3 ÷ 6 = 0 R 3
Words 4, 5, 0 selected
from left to right

SENTENCE

0 1 2 3 4 5
He is running through her fingers.

POEM

1 her
2 running
3 running
4 her fingers. He
5 running
6 her fingers. He



almostPoetry

Algorithmic Text Generation & Poetry Book (2003)

Project Brief Long before the advent of Large Language Models (LLMs) & modern Generative AI, I explored how mathematical systems could act as co-authors in natural language generation. The objective was to create a book of poetry entirely generated by a strict, rule-based algorithm applied to a pre-existing corpus of text (the screenplay for *Almost Famous*).

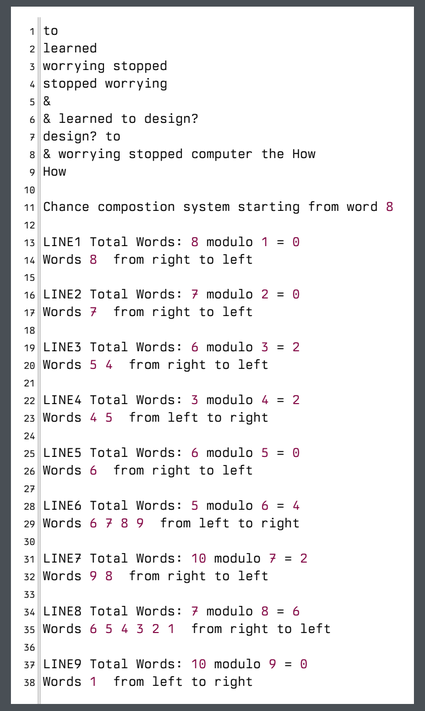
Execution I engineered a six-step computational logic system that treated sentences as indexed arrays. The algorithm used modulo arithmetic (the remainder of the current word's index divided by the line number), randomized 50/50 directional parsing, and recursive looping to remix the source text into new poetic structures. This systemic framework dictated line lengths, word selection, and syntax, completely removing my own subjective authoring from the execution phase.

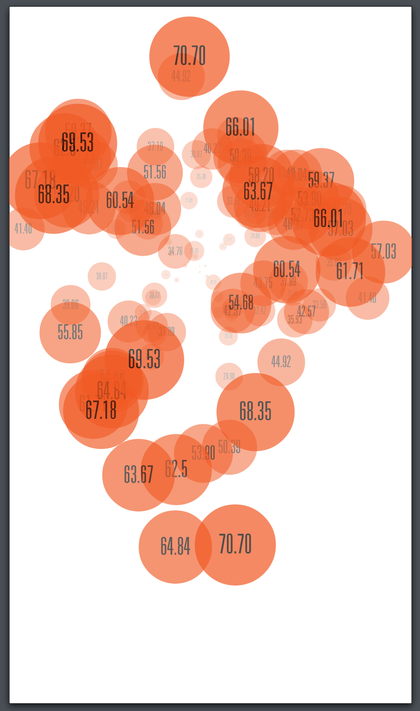
Results The resulting concrete book, *Almost Poetry*, stands as a physical artifact of early algorithmic text generation. It proves a foundational, 20-year understanding of how rules, parameters, and mathematical systems can parse human language to create new, unexpected meaning —*the exact conceptual architecture that underlies today's generative AI models and prompt engineering*.

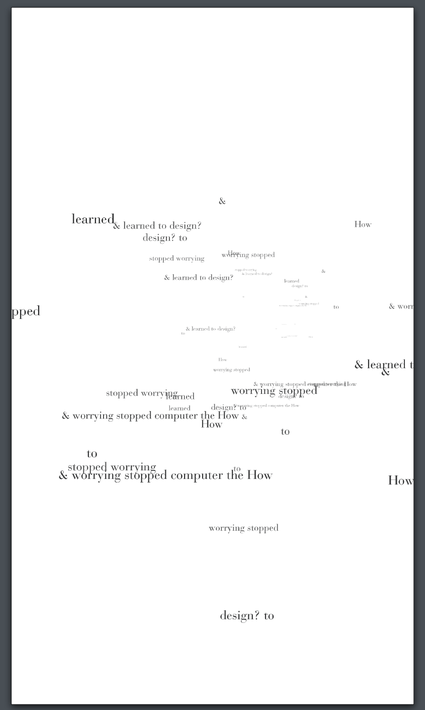
Roles Systems Architect & Book Designer

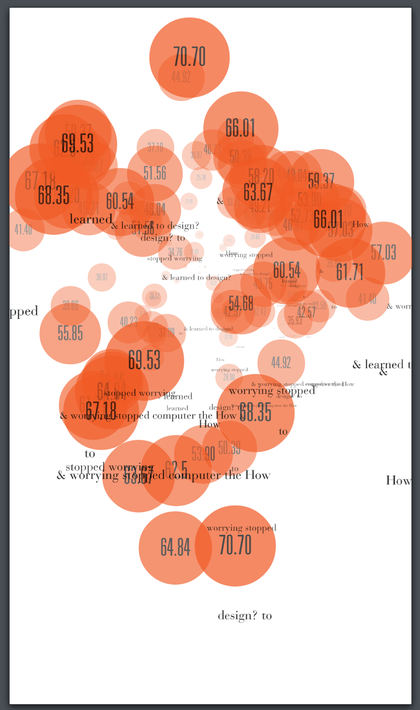
Tech Algorithmic Processing, Modulo Arithmetic, and Concrete Book Design

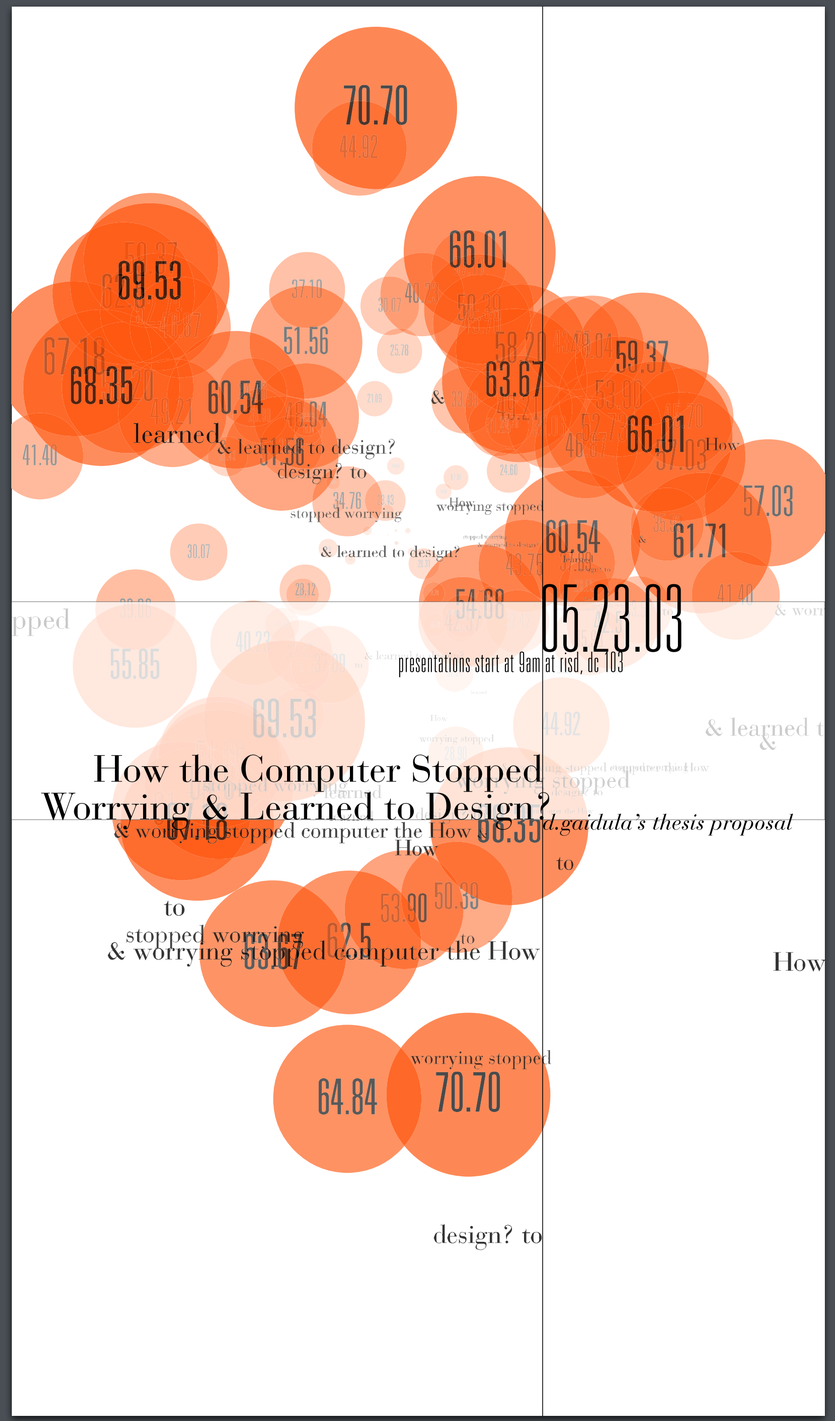
danGaidula⟹{p:2674814710, e:dan@gaidula.com}











How the Computer Stopped Worrying & Learned to Design?

Prophetic AI Poster (2003)

Project Brief My initial MFA thesis proposal at RISD in 2003 sought to explore computational design's future and whether a machine could act as an active participant in the creative process.

Execution Seeking to demonstrate human-machine co-authorship, I created this poster in successive, interdependent layered stages. Using the talk's title as a 'seed' phrase, a poem was parametrically generated, then fed to an algorithmic engine of my own creation (the "spiral machine") that uses mathematical equations and chance parameters to create a range of layouts, from simple to improbable, for both the text and a dot-pattern image. Human 'taste' is added as these layers are combined with the practical bits (title, date, time, and place) to form the final cohesive artifact.

Results This early process of algorithmic generation combined with human editing is the pedagogical foundation for how I teach and work with Generative AI & prompt engineering today.

Primary Source Title is not a retrofit: it belongs to the one-page proposal this poster announced; dated May 16, 2003. Full-page in the appendix; and at gaidu.la/proposal-2003.

Roles Creative Technologist, Designer, & Engineer

Tech Custom Object-Oriented Parametric Software (ActionScript), Mathematics, Large-Format Printing

From top left; algorithmic poem and layers from "spiral machine", final presentation poster.

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Desperately See(k)ing Systems

Graphic Design MFA thesis

Survey of design systems in sixteen posters and an analog computing magnetic tile game that explores learning & perception with memory and pattern matching functions.

Principles of the course, *Concrete Books*, as taught by Thomas Ockerse at Rhode Island School of Design were employed in the game's development and creation.

The game is concrete in that its forms and modes of play are derived from the findings of this study and form a parallel 'text' comprised of the dialog between its constituent parts, rules, modes of play and those that interact with it.

Part of the *permanent collection* of the Fleet Library, Rhode Island School of Design.

Execution Two years of making, reading, research, study, teaching, writing, and reflection.

Construction Sixteen 19 x 19″ dye-sub printed posters on Cougar smooth 100 lb cover. Concrete game is made of eight furniture-grade laminated wood blocks with counter-sunk magnets, 256 hand-cut double-sided laminated magnetic tiles, painted metal backing board, and laser-cut transparent acrylic top. Custom-fit archival case, and CD-ROM.

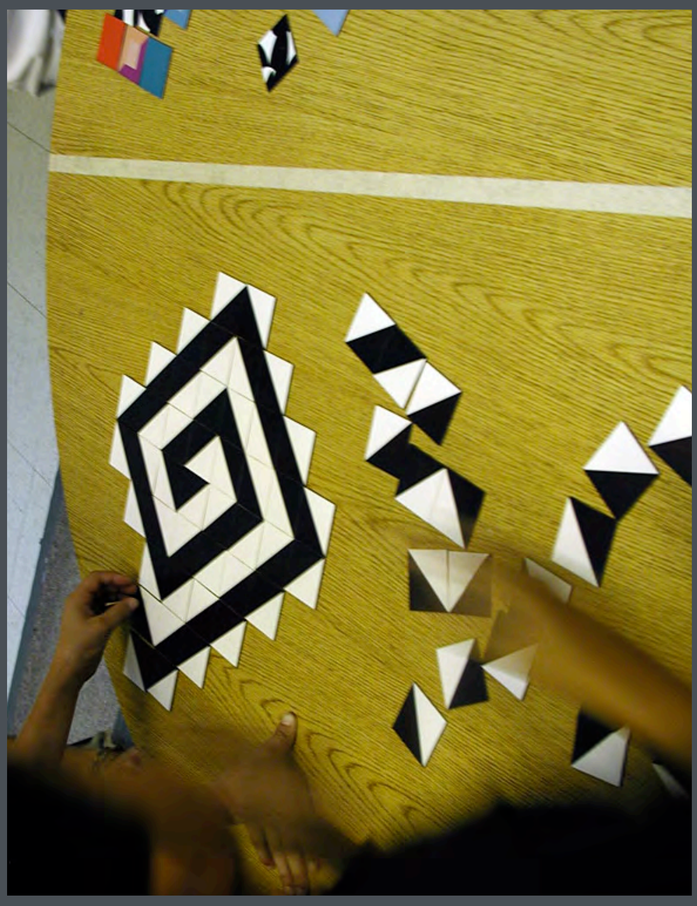
Roles Graphic Designer, Product Designer, Creative Technologist, Researcher, & Writer

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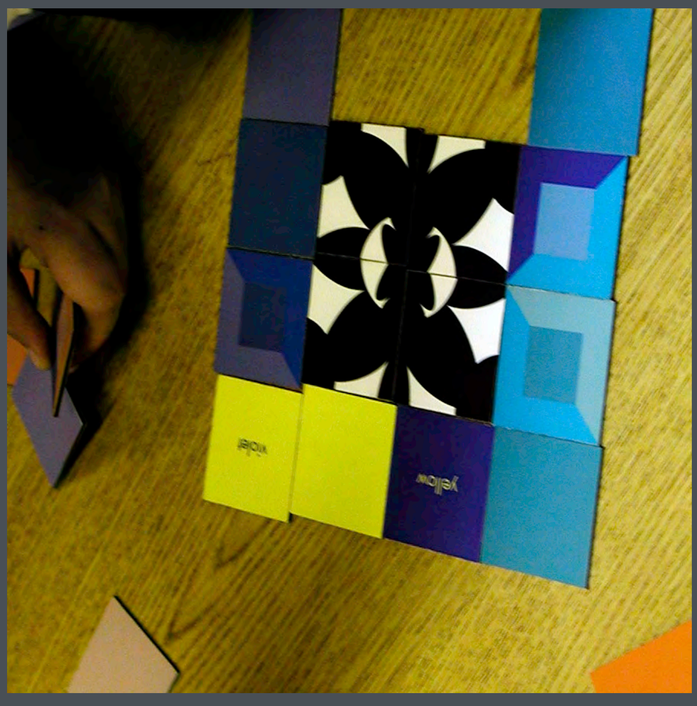
danGaidula⟹{p:2674814710,e:dan@gaidula.com}

Concrete tile game user research studies with local schools.

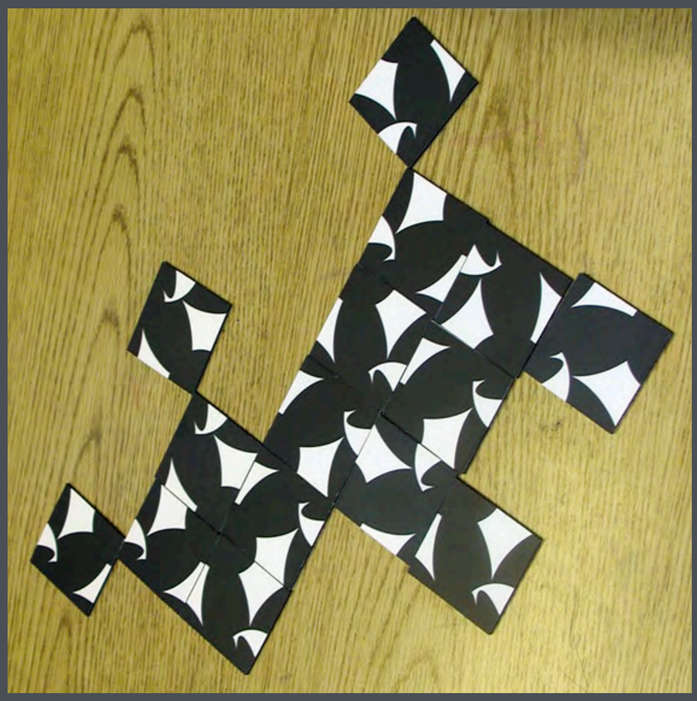






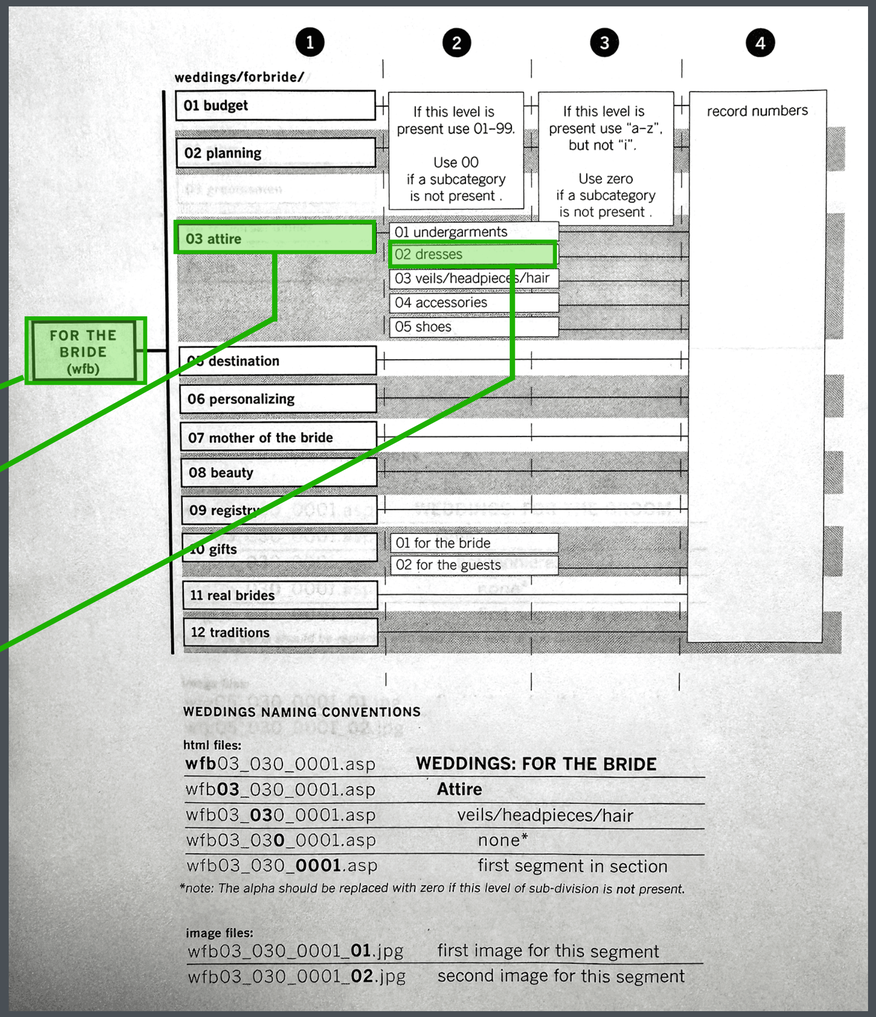












askMartha

Natural Language Search (1999)

Project Brief In the early days of the web, traditional publishers feared that releasing free digital content would cannibalize print magazine sales. To test digital viability, Martha Stewart Living Omnimedia (MSLO) sought a "gatekept" method to publish their premium *Weddings* content.

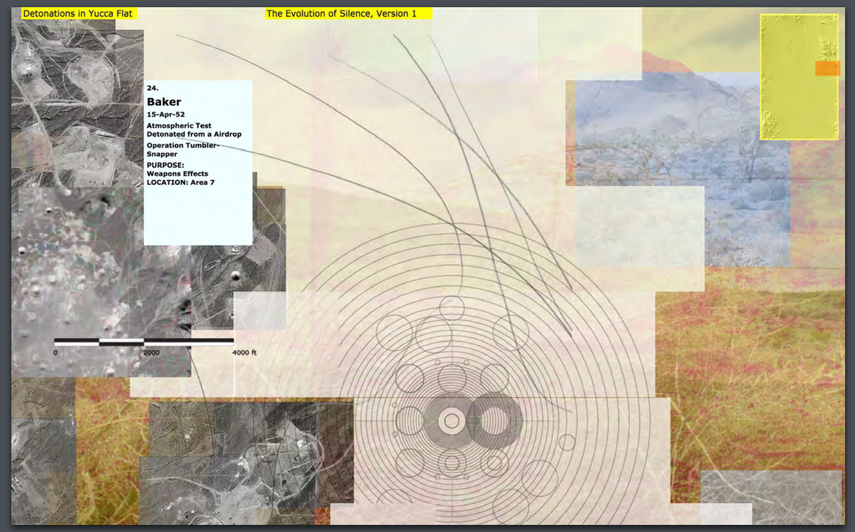
Execution Long before modern AI, I designed and architected "askMartha", an early conversational UI powered by the AskJeeves natural language engine. To make this work, I engineered a comprehensive database taxonomy and naming convention (pictured right) that categorized, tagged, and structured years of editorial content so the machine could accurately retrieve and serve it based on conversational user inputs.

Results This system successfully introduced MSLO's premium content to the web without harming print sales, paving the way for the company's IPO. More importantly, it established my 25-year foundation in structuring complex data for machine-based retrieval (the exact precursor to modern algorithmic generation and AI workflows).

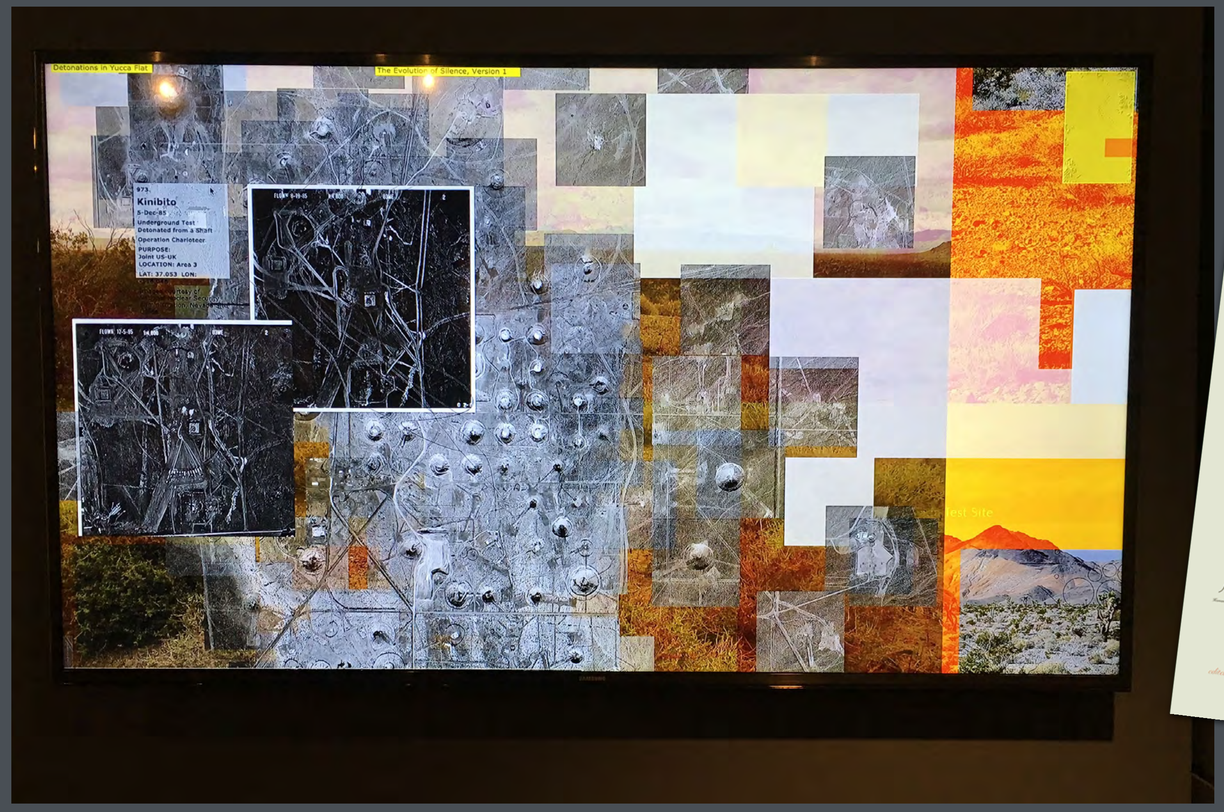
Roles Associate Art Director & Interactive Designer

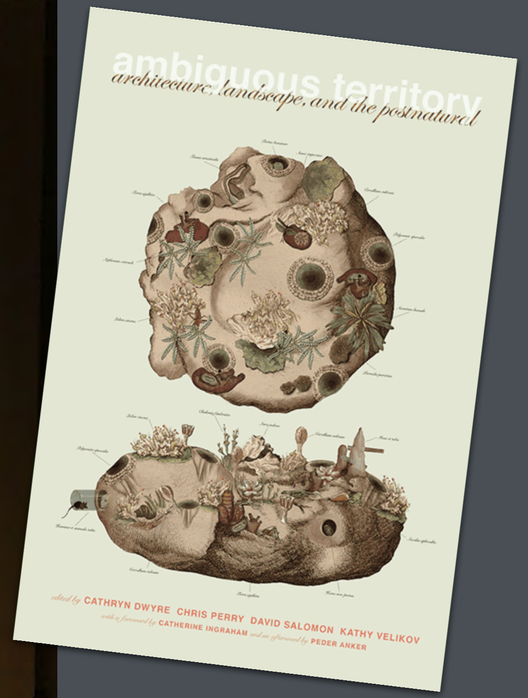
Tech AskJeeves NLP Search Engine, Relational Database Architecture, ASP, HTML

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Clockwise from top left: baker site, annie site, ambiguous territory exhibit journal, site on exhibit

Evolution of Silence

Interactive Experience

Rachele Riley, an experimental artist & designer, amassed multiple sets of data in her grant-funded creative research project addressing the impact of nuclear testing at Yucca Flat within the Nevada Test Site. The data: official data from the U.S. Department of Energy, satellite imagery, and her own drawings, photos, videos, sounds, and writings of and about the site.

Project Brief Develop a data-driven rules based particle system to interactively explore the hundreds of detonations & their associated data sets in a scale map of the testing area.

Execution Created rate-limited particle system that draws the ***828 denotations on screen as interactive tiles***. A matrix of predetermined rules, data, and user input determines a tile's behavior. A dynamic legend (yellow box; upper right) reflects the user's location relative to the overall area.

Results Users are challenged through inquiry to make sense of the scale of violence that occurred and conceptually reclaim this space through an experience of knowing.

Roles Technical Consultant & Front-End Engineer

Tech HTML5, CSS, jQuery, and JavaScript

visit site *exhibit video* *artist site*

/// RECOGNITION

NetArt Webby and AIGA Philly Design Awards, presented in numerous national and international (SIGGRAPH 2014 & 2016) exhibits and publications.

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Dynamic Mapping

Grant-funded Interactive Experience

Project Brief The Collective Wisdom Initiative (CWI), grant funded by the Fetzer Institute, engaged our team to translate their book, *Centered on the Edge*, into a web & CD-ROM interactive experience.

Execution Created a non-linear interactive circular interface of twenty-eight 'cells', each representing a principle from the CWI's book and research.

The map and its flux of objects are created and governed by a matrix of rules that integrate floating-point randomization into their behavior.

Cells are designed by selecting which rules to include for each of its objects (sound, video, images, colors), behaviors, and interactions. Rules have predetermined behaviors, so the inclusion of one can have unintended affects on the cell or its parts.

Results The map is an infinite game of meaning—a conduit of dialogue between designers, players, and the play itself with each acting as co-author of the system's outcomes and experiences.

Roles Lead Designer, Systems Architect, & Front-End Engineer

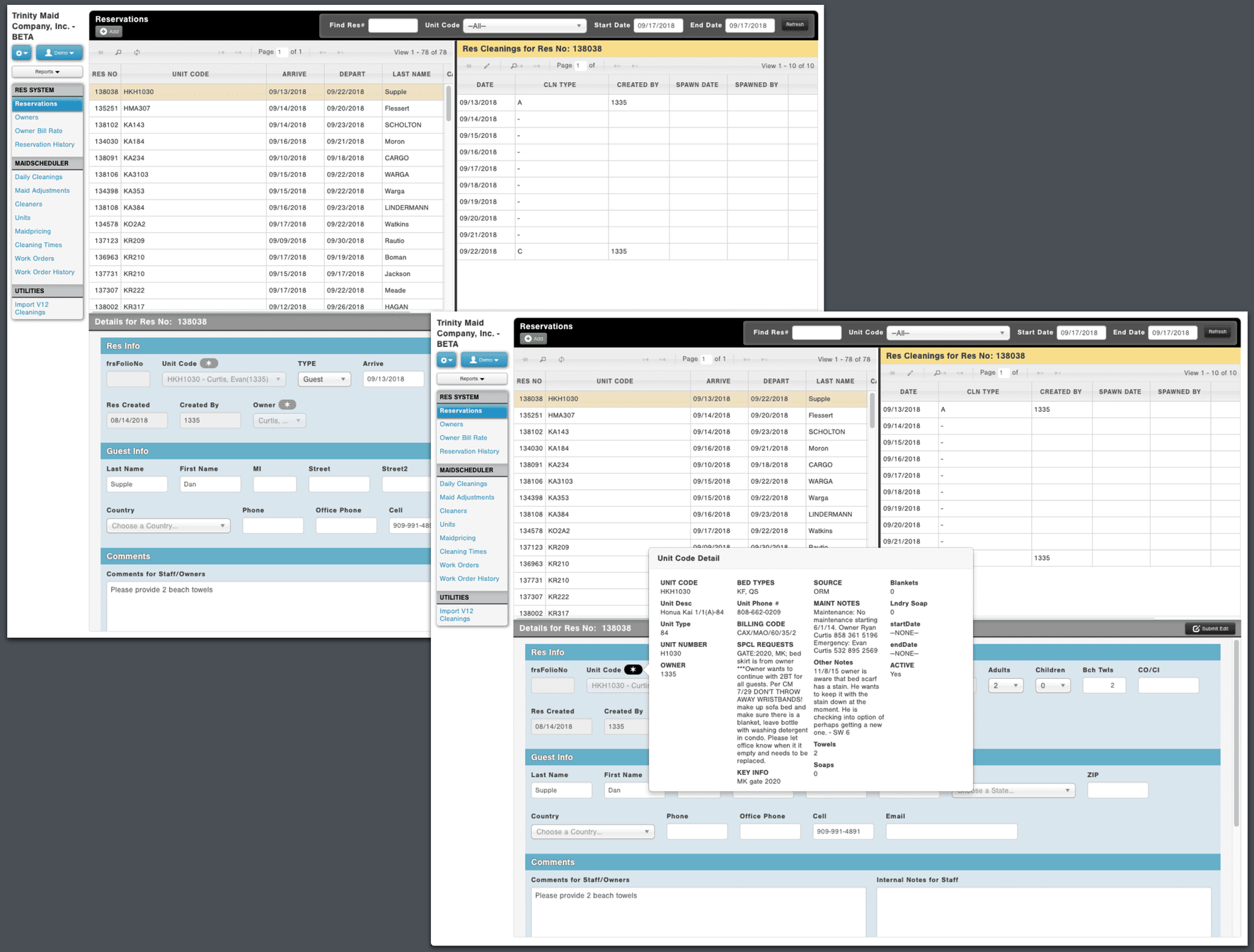
Tech HTML, CSS, scripted audio mixing, ActionScript

from top left clockwise: Making & Breaking the Grid; p 204, Desperately See[k]ing Systems; Poster 11: Co-Authorship, Archis: Vitality; p 70.

/// RECOGN1TION

Published in *Making & Breaking the Grid*, 2nd & 3rd Edition, 2017 & 2023, and *Archis: Vitality (Archis is Alive)* no. 3, 2004.

danGaidula⟹{p:2674814710, e:dan@gaidula.com}



IceBox Enterprise Workflow Automation Framework

Maidscheduler SaaS App

Project Brief A Hawaiian property management company was struggling to scale due to highly complex, manual scheduling processes. Managing the daily cleaning dispatch was a full-time job, and human limitations meant the schedule could never be planned more than one day in advance.

Execution (Process Tuning) Working directly from the ethnographic feedback of the dispatchers, I architected a highly dense, data-driven framework using jqGrid. Rather than forcing a spacious, trendy UI hindering rapid data entry, the interface was intentionally designed for maximum information density. I also engineered backend automation to parse the massive master schedule and instantly generate individualized daily PDF itineraries for each cleaner, alongside XLSX financial reporting.

Results & ROI The automation was transformative. A month's worth of scheduling (next to impossible with previous paper system) could be completed in one hour, and real-time sick calls could be rerouted in minutes. This eliminated the manual bottleneck, saving the company $80,000 annually and freeing that employee to focus on higher-level operations. Furthermore, the underlying grid framework was so modular it was later white-labeled to automate a Maui Activities Desk and a subscription-based Tax Management (GET/TAT) SaaS.

Roles UX Architect & Full-Stack Engineer

Tech PHP, JavaScript, jqGrid, Relational Databases, OpenOffice PHP (XLSX), Automated PDF Generation

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myPETucation

Startup: Technical & Design Founder

After the successful acquisition of patient post-op education provider ExitCare, three of its founding partners started a version for veterinarians—myPETucation.

Project Brief Create memorable branding and SaaS product, sold directly to veterinarians, providing personalized post-op care and education materials to their patients.

Execution Branding focuses on the testimonials of actual patients (pets) and how good it feels to receive better care through myPETucation. Each 'pet' species gets their own typeface as a visual cue of hearing their unique voices and needs.

Used an *Automated DesignOps Architecture*, to manage user logins, and patient data. Created separate back-end API service that merges Parse data with a catalog of procedure illustrations and text into optimized PDFs for distribution.

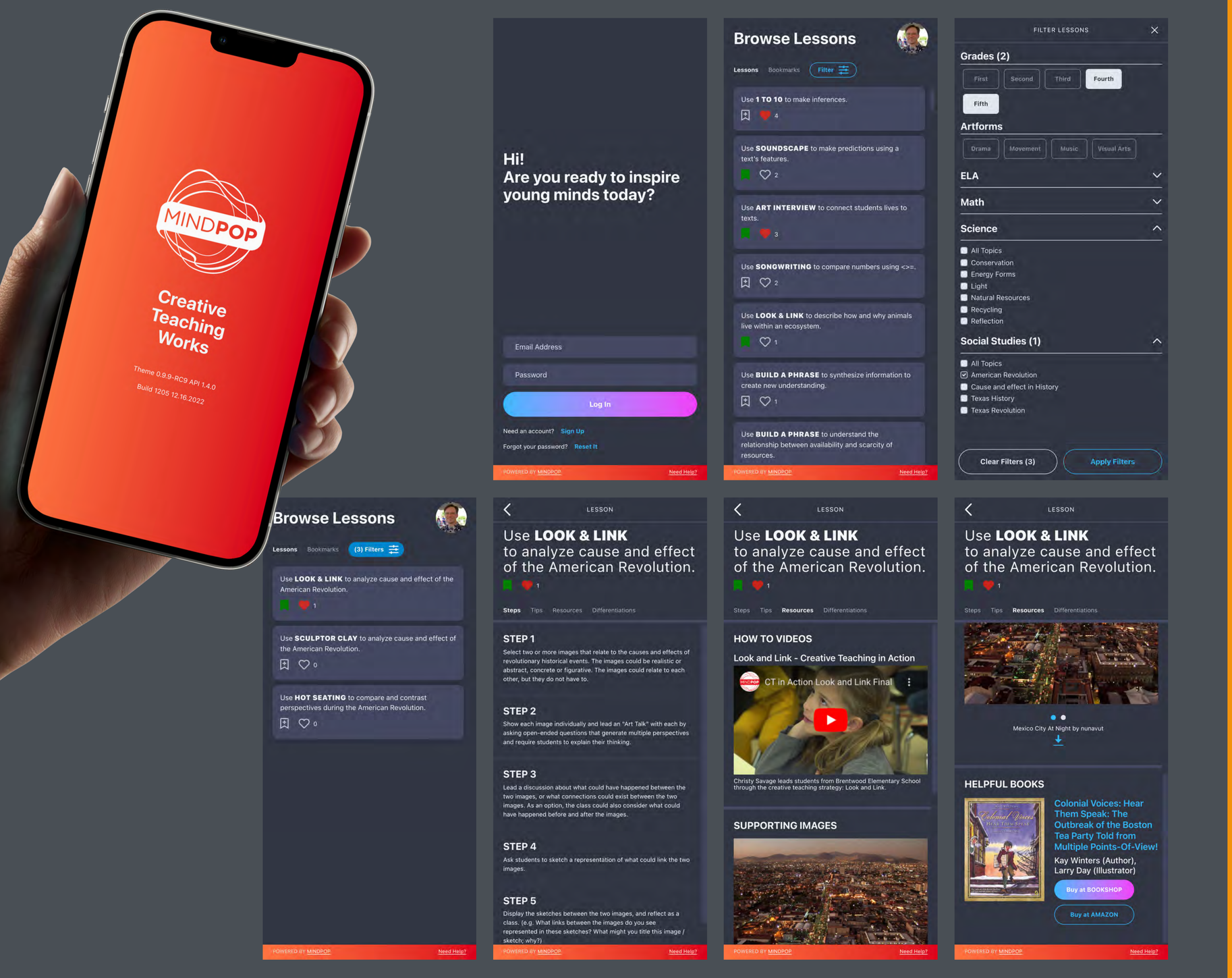
Roles Brand Designer, Art Director, UX Architect, & Full-Stack Engineer

Tech Parse, backbone.js, mPDF, PHP, HTML5, CSS, JavaScript, and various backend shell scripts

From left: homepage scroll down

[visit homepage]

danGaidula⟹{p:2674814710,e:dan@gaidula.com}



Creative Learning

Progressive Web App (PWA)

MINDPOP (MP) is a non-profit that designs and implements creative learning systems nationwide. They are a key partner of Austin's Creative Learning Initiative (CLI) where students receive increased access and experiences to arts learning in music, visual arts, dance, and drama through their schools and community arts organizations.

Project Brief MP sought to develop a PWA to increase access to their research-driven CLI lesson plans, support media (video, images, books, documents), and differentiations (accommodations & learning-style variations).

Execution UX/UI designed with Adobe XD and in-browser dev tools via CSS. Headless WordPress with custom plug-in used to provide management of assets, user admin, and GraphQL API. Front-end built using HTML5/CSS, ReactJS, & JSX components consuming GraphQL with Apollo, and Workbox for app caching.

Results Live filtering of 120+ lesson plans has been a game changer in helping the CLI ambassadors to quickly get support media and lesson updates while in class. Bookmarking helps with future class plans while favorites allow all users to see in real-time which plans are getting the most traction.

Roles UX/UI Designer & Full-Stack Engineer

Tech HTML5, CSS, ReactJS, JavaScript, GraphQL, PHP, WordPress CMS (HEADLESS)

launch creative learning app

danGaidula⟹{p:2674814710, e:dan@gaidula.com}



From left: original MVP, landing page, business card front & back

CrowdStitch

Startup Branding & Technical Founder

Attended Start-up Weekend Delaware as designer/developer ringer for hire. Joined Events Management Network app team of three (myself, founder, and writer) during day one pitch phase.

Project Brief Build and design Minimal Viable Product (MVP) for pop-up social networking service during a 72-hour Agile Maker Sprint.

Execution Product naming (CrowdStitch), logo, and MVP built as Progressive Web App (PWA) in 72 hours by modifying existing open source PHP chat library. Took founder through accelerated naming Launch site and further branding completed as start-up founding member.

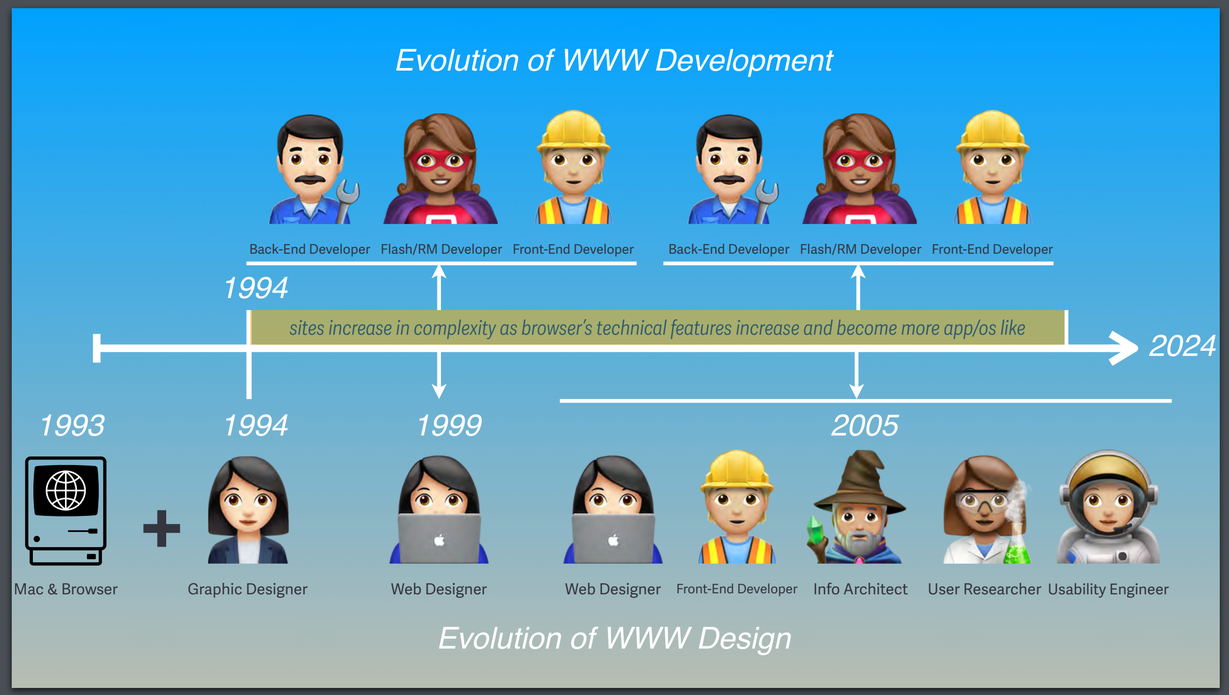
Roles Brand Strategist, UX Designer, & Full-Stack Engineer

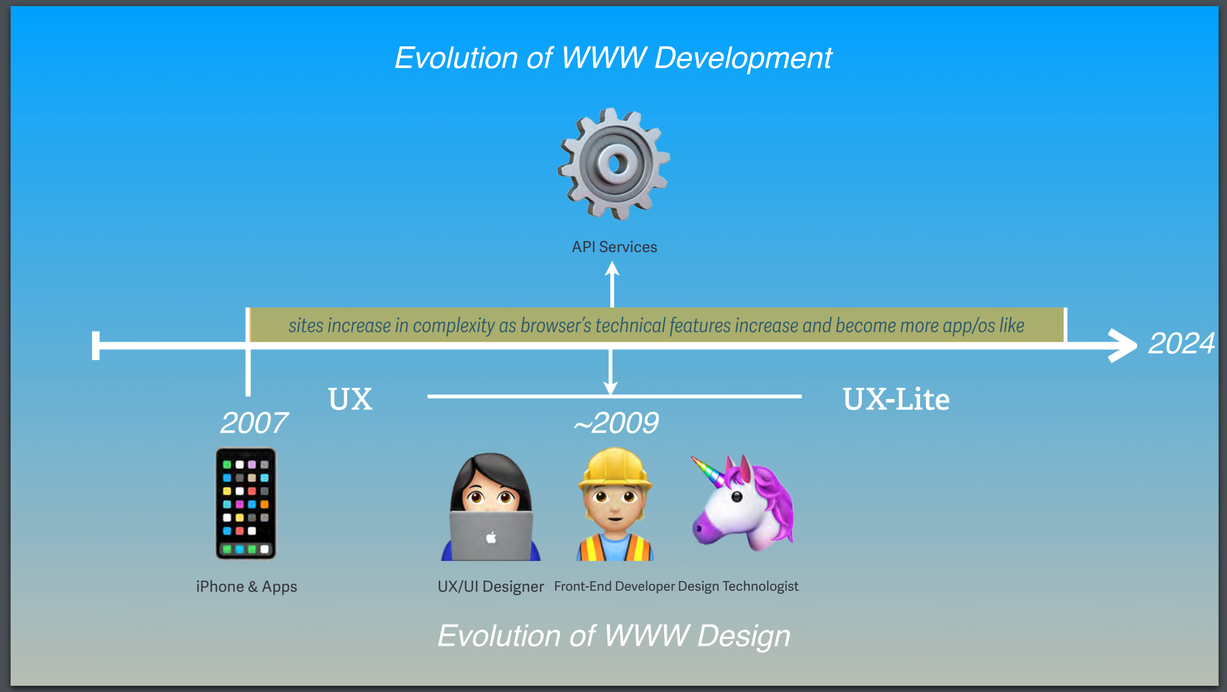
Tech PHP, HTML5, CSS, and JavaScript

/// RECOGN1TION

Second-place finish at Start-up Weekend Delaware.

danGaidula⟹{p:2674814710,e:dan@gaidula.com}





The Evolution of Web Design & Development

Corporate Training, Lutron Electronics

Project Brief As part of a comprehensive Project Management training curriculum developed for Lutron Electronics, I needed to contextualize the rapid evolution of digital product design and team structures for a modern, predominantly Millennial and Gen-Z audience.

Execution I designed a highly visual, emoji-based timeline charting the complexity of web development from the early 1993 text-based HTML era to the "high point" of specialized UX roles through the mid-aughts. The lecture mapped the historical transition from heavy UX research phases into today's "UX-Lite" era. I broke down how standardized HCI guidelines published by tech giants shifted the industry, condensing massive teams into hybrid "UX/UI Designers" and "Design Technologists".

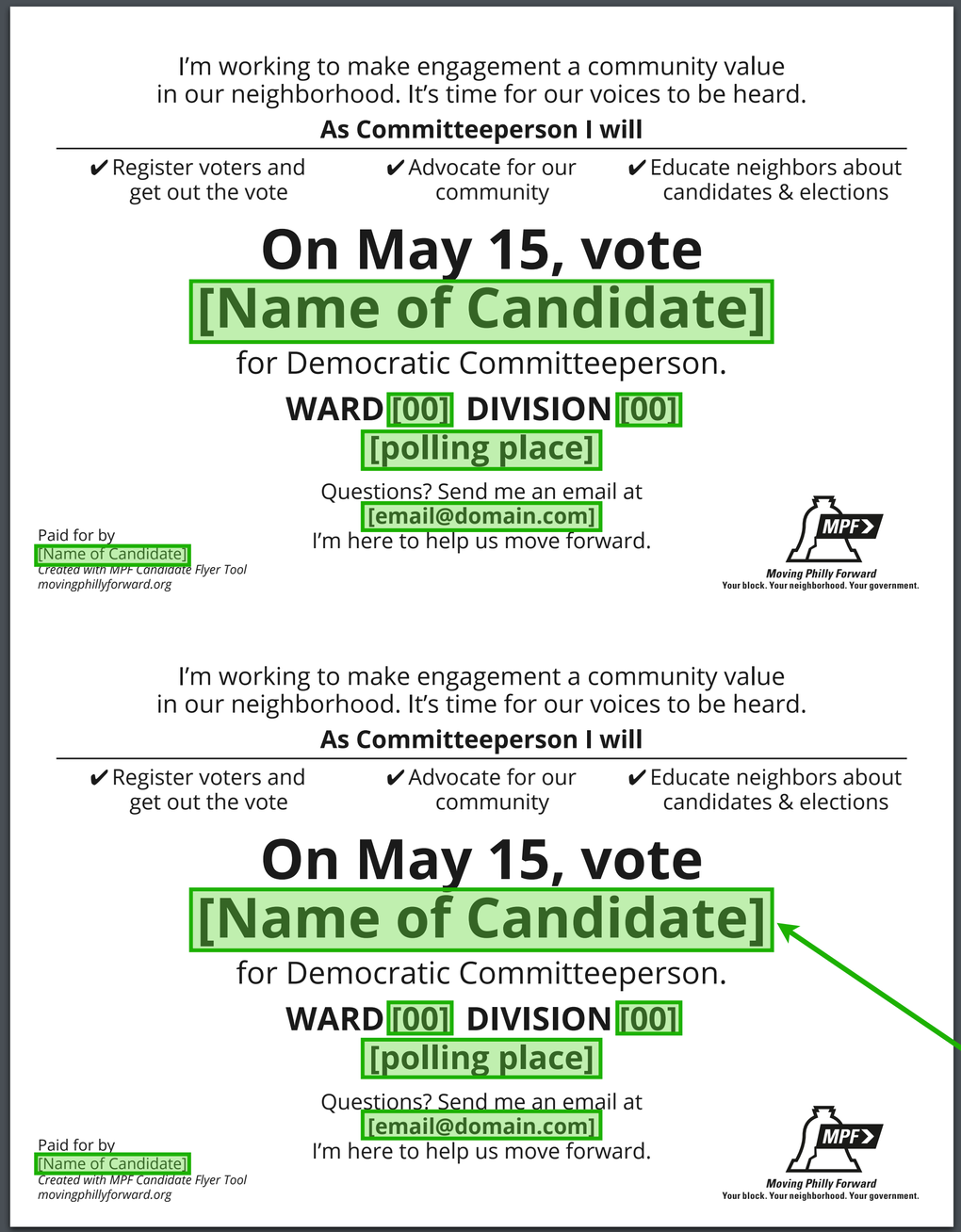
Results By translating thirty years of dense technological shifts into an engaging and relatable visual narrative, the presentation successfully demystified web history for non-technical project managers. These slides serve as a prime examples of my pedagogical philosophy: *utilizing accessible information design to teach complex technical systems and industry history*.

Roles Design Educator, Designer, Writer, and Consultant

danGaidula⟹{p:2674814710,e:dan@gaidula.com}







Dynamic data merged instantly for user download

Civic Tech Automation

Candidate Flyer Tool
(Moving Philly Forward)

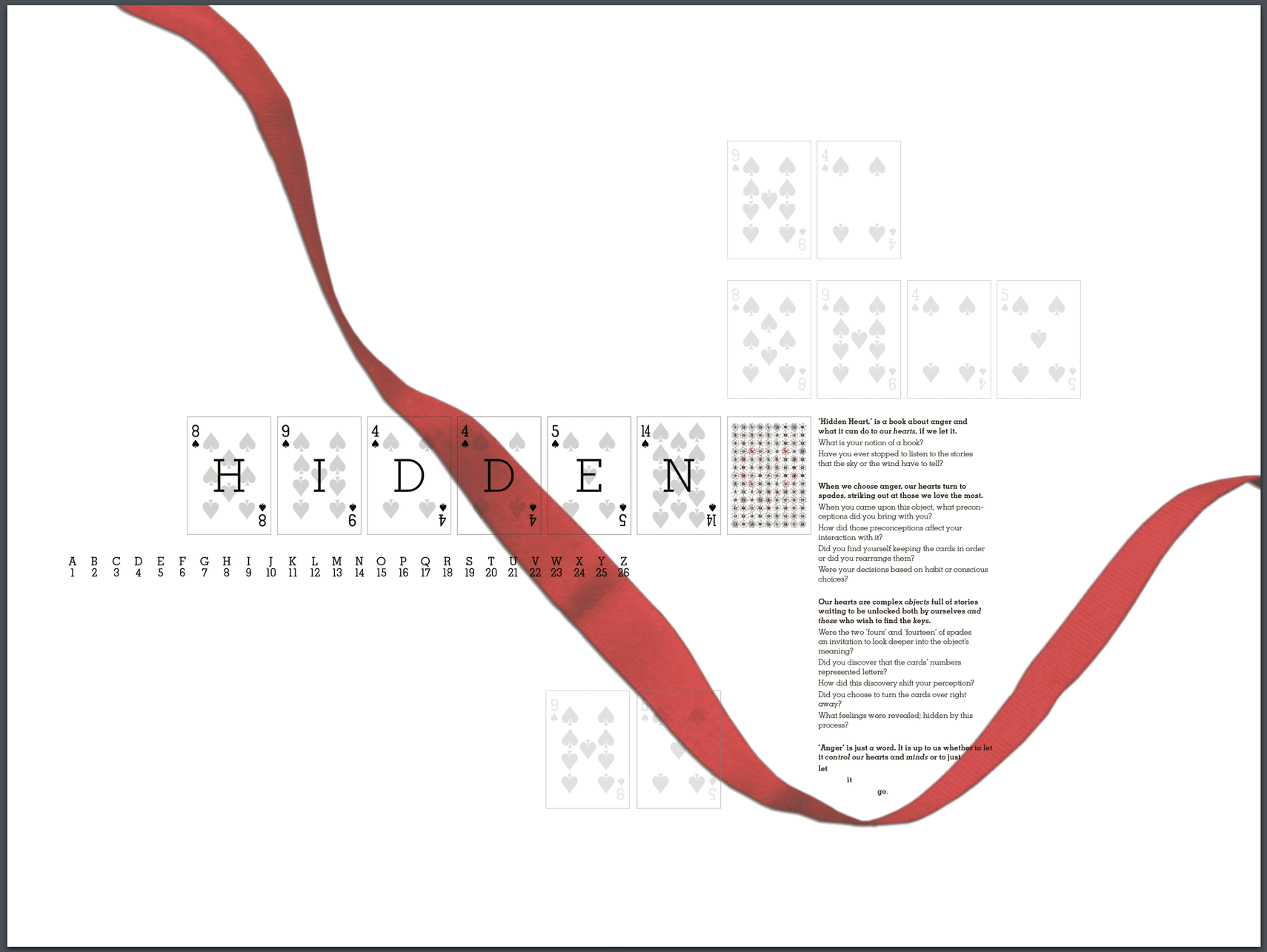
Project Brief To empower everyday citizens to run for local "Committeeperson" positions, Moving Philly Forward needed a way to provide grassroots candidates with professional, election-compliant campaign materials. We had to do this at scale, without requiring a massive internal design team or forcing candidates to buy expensive software.

Execution I designed and engineered a self-serve digital tool utilizing an automated PDF-form architecture. First-time candidates could simply input their specific Ward, Division, polling place, and contact information. The system instantly merged this data into a dynamically generated, flattened flyer. The aesthetic was intentionally designed as high-contrast black-and-white to ensure maximum legibility for cheap, high-volume local photocopying.

Results By automating the design production process, "DesignOps for Civic Tech", we completely removed the financial and technical barriers to entry for first-time candidates. The tool successfully standardized the MPF messaging across Philly neighborhoods while empowering citizens to launch their own hyper-local political campaigns.

Roles Technical Founder, UX Designer & Developer

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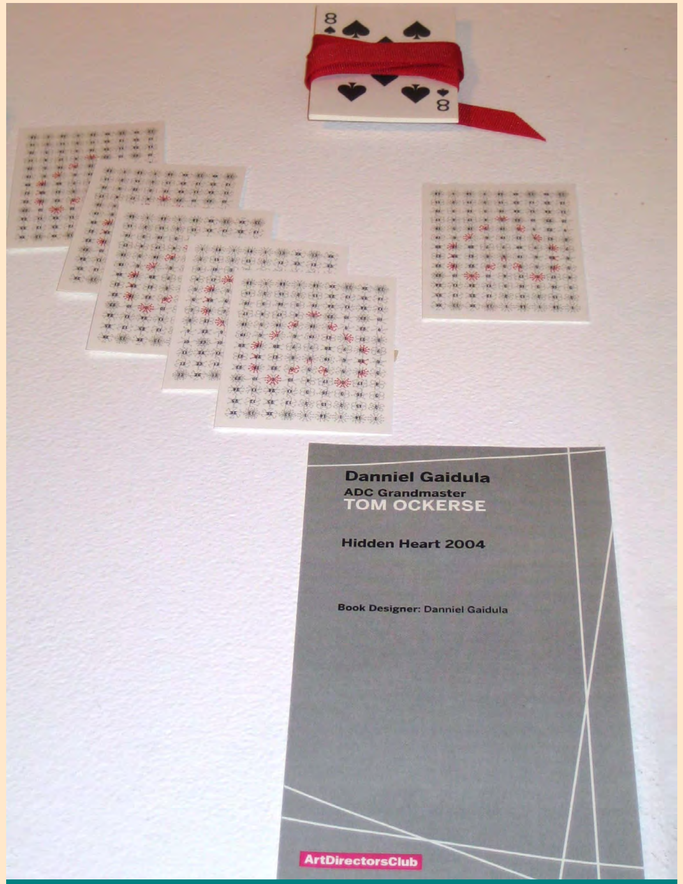
Hidden Heart & Revealed

Concrete Book & Poster

Hidden Heart Revealed, is a poster de-constructing the concrete book, *Hidden Heart*, which consists of six unique playing cards bound by a single length of red ribbon.

The poster's grid is based on full-size playing cards.

Roles Designer, Photographer, and Writer



/// RECOGN1TION

ADC Grandmaster: Thomas Ockerse exhibit, NYC

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Appendix
Primary Sources

How the computer *stop*ped *worrying* & learned to design?

Butterflies, leaves and snowflakes are all produced by systemic designs occurring in nature. Each of them comes in endless varieties which are all beautiful and captivating in their own right. Yet the research of Stephen Wolfram and others has shown, that all of these seemingly complex systems can be described by simple sets of behavioral rules.

objective It is the intention of this study to better understand how systems can be used to create content as well as shape form and meaning within print, interactive and digital media. Furthermore, the roles of chance and variability will be studied in regards to their function in the application of such systems.

purpose and validity/potential uses The potential of both natural and man-made systems are for the most part are under utilized in the design field. Systemic authorship and iteration combined with the designer's intuition and editorial skills has the potential to yield powerful design solutions. While the investigation of such systems is taking place in the digital realm, they are not being used to inform and shape the design of more traditional media. Furthermore, the majority of these digital explorations are more for their own sake than developing a greater understanding of the systems themselves and how they work. Such an understanding is becoming more urgent as designers are having to create solutions which span digital, interactive and print media. Unfortunately, more often than not, these solutions are merely reflections of the same content expressed with a different medium. Where instead they could be designed as a system where each part utilizes the particular strengths of its medium to both unify, diversify and bring greater meaning to the whole. The goal of such an undertaking being to provide the audience with a more complete understanding of the content.

relation to work of others The majority of those currently working in the digital realm are more interested in creating "cool" designs than informing themselves and the field at large of the systemic principles at work. Furthermore, those that are undertaking such iterative systems of experimentation are either not classically trained as designers and/or do not apply the knowledge yielded to the design field. Stephen Wolfram has been investigating the role that "simple" iterative systems play in the world around us for over ten years. The results of his research and their application to many fields are detailed in his book, *A New Kind of Science, 2002*. Having just begun to look at his work, I am not versed enough in its results to properly frame them in regards to my own. I intend to further study the work of other "systems thinkers" both analog and digital, such as Müller-Brockmann's work with the grid, Gerstner's codification of writing systems, Charles Ives, John Cage, Max Bill and others.

danniel t. gaidula *mfa candidate*
05.16.2003 thesis proposal

methodology As a result of my own experimentation, I have identified three types of systems for further study: static, reactive/dynamic and interactive.

Static systems are those that do not change regardless of the condition of their surroundings or when faced with outside stimuli. Their results are predictable, repeatable and reliable. Repeating patterns in textile design either in surface decoration or in weave are good examples of this type of system.

Reactive/dynamic systems are those that change (react) according to the conditions of their surroundings. Such changes in condition could be time, proximity and/or variability of other systems, amount of growth or change, etc. Both their predictability and their reliability are dependent on their inherent amount of variability as described by the rules governing their behavior. The formation of ice crystals into snowflakes is an example of a such a system. The way in which individual ice crystals connect to form a flake's design can be described in terms of systemic rules based on cause and effect. It is known, for instance, that certain snowflake designs only occur within a particular range of temperatures. This type of system makes it possible to predict the potential set of outcomes, but not which iterations from this set the final outcome will contain.

For example, one could predict for a given snowstorm's conditions (temperature, cloud ionizations, altitude, wind speed, etc.) that it is possible for twenty different flake designs to be created. While in actuality, that given day only produces five different designs from the twenty which are possible.

Finally, interactive systems can be either of a static or reactive nature except that they respond to user stimuli. Their predictability and reliability can be shaped and determined by the interaction of the user.

Using Flash as a sketchbook and as one of many rapid prototyping tools for the development of design systems, they can be applied to any number of practical design problems both on- and off-line. The systems themselves being products of the design process and are design solutions in their own right. For instance, a poster's elements could be given hierarchical rules which are then allowed to iterate themselves within a larger framework for the application of those rules. The larger framework and its subsequent iterations having been developed using Flash's ActionScripting capabilities along with other tecnologies as necessary. Iterative motion, sound and color as well as chance operations are other possibilities for exploration. Such systems could also be applied to the design of information spaces and their interfaces.

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