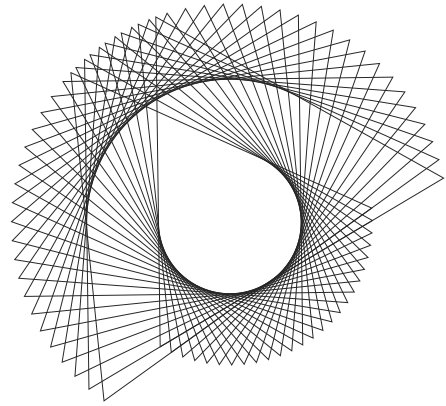


letter from

projector



9:00 PM Pacific Time

Menlo Park, CA

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I'll never forget the face of a perfect stranger. A rocket scientist no less who I met in Berlin one morning; he was an astrophysicist visiting from Helsinki. Our conversation took place on a dance floor in early, muted daylight – the reason I could see his face so clearly. With conviction in his voice, yet an obviously amusing wonder in his eyes, he exclaimed to me that “We know more about outer space than we do about the human brain!” He laughed at the fact sadly it seemed, bewildered by the truth in his statement. As I empathized with his subtle panic, our interaction was committed to my memory.

It was the summer of 2016 and I was in the German city to visit friends I met while interning in the Manhattan office of a startup named SoundCloud. A year prior, I had moved to New York to join the company at a time when they were 8 years into their journey. It was a real turning point for both of us. Swedish co-founders Alex Ljung and Eric Wahlfors established the music platform in 2007 to help facilitate collaboration between musicians. In turn they created a disruptive service for music distribution. The platform enabled people to freely upload audio files and share music, resulting in a new distribution of power in the music business. Artists were signed to deals by major labels after building their own careers online and this changed a longstanding dynamic between music artists and their labels. “Bedroom” producers, vocalists, musicians and DJs discovered their calling and an audience on SoundCloud.

Moving to New York allowed me to enter an ecosystem of fascinating music technologists and enthusiasts. I so admired how they understood sound – a tribe of people I felt I'd been waiting to find for some time. When I was about to graduate from college, all I wanted was to continue geeking out on music.

At USC (University of Southern California), I split my time between studying public relations and pursuing a digital studies program that was growing through the cinema school. Media Arts and Practice (MA+P), formerly known as the Institute of Media Literacy, was beginning to offer a degree emphasis track to supplement any major. The track immersed students in new media practices for research and expression. These practices dealt with sound, images, networks, games and interactivity. It was a space for students to interact with concepts similar to those applied at art and design schools like Parsons, Pratt, and Cal Arts. The goal was to explore technology through modes equally creative and critical.

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The MA+P Honors in Multimedia Scholarship program culminated with a capstone project to be shown in a class-wide exhibition. Students were asked to pose a question then respond with a thesis by using media tools and research practices. Approaching the project came with mysterious permission that art could be used to address real-world problems with evidence-based solutions. Viewing academia in this light would forever alter my perspective. With the added layer of agency to come up with questions off the beaten path and devise the methods for answering them, schoolwork transformed into something more intriguing. The thesis project presented an opportunity for me to scratch the surface of my own curiosities. "Why does music evoke nostalgia?" was the topic of my research.

For a long time there'd been questions forming in my head in about music and memory. Affecting my environment through sound was always something that felt necessary to my survival. From a very young age it was music that could provoke my greatest joy and deepest sadness. Portable music devices allowed me to transport these feelings everywhere I went; a Sony Walkman, iPod Shuffle and iPod Classic were what kept me sane. As I got older I started to wonder why hearing a familiar song could trigger a visceral memory recall that was otherwise impossible for me to access. Why was it so easy, automatic even to remember nuanced details about the time and place I heard a song for the first time, while incredibly difficult to remember a new person's name just five minutes after meeting them? My informal hypothesis was that emotionally charged experiences were shaping neural pathways that help form our music preferences, among other things such as memory.

My thesis project explored the perceptual phenomenon of synesthesia. A condition that makes stimulation of one sensory modality automatically trigger sensory perception in a second modality, what Richard Cytowic popularized as a *Union a of the Senses*. Since a synesthete's experience is the result of neurons firing together, causing sensations to overlap, I thought it might provide interesting information about the wiring that occurs in the brain. Using data from my own music library, I produced an installation of sound, color-specific lighting schemes and a large-scale video projection to mirror the experience of a synesthete. It was my first attempt at representing how music and memory might work together in our mind.

In order to build something based on a thorough concept, I needed to better understand how humans neurologically process sensory information. As well as how that process correlates to the storage and triggering of memory. For first time, I'd come to understand what the man from Helsinki would point out to me some years later: science has relatively little understanding about how the mind works, much less significant research on synesthesia.

Neuroscientists Oliver Sacks and Daniel Levitin provided the main texts I worked from at the time. Their respective work, despite an abyss of unknown factors, helped me confirm that music can indeed provide precious insight into our neurology. With the added help of imagery such as MRI tractography scans my mother used in her work as a radiation oncologist, and this anecdote from Dr. Sebastian Seung of the EyeWire and *Connectome* projects, I could familiarize myself with how neural connections form and look.



2.

Dr. Seung told me to imagine a river, the rolling waters of the Colorado. That, he said, is our experience from moment to moment.

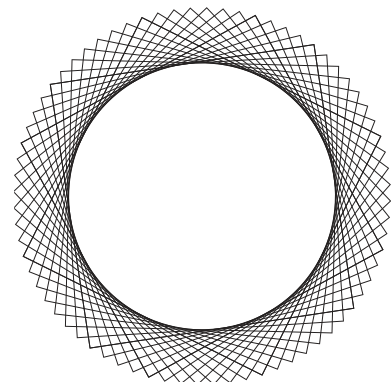
Over time, the water leaves its mark on the riverbed, widening bends, tracing patterns in the rock and soil. In a sense, the Grand Canyon is a memory of where the Colorado has been. And of course, that riverbed shapes the flow of the waters today. There are two selves then, river and riverbed. The river is all tumult and drama. The river demands attention.

Yet it's the riverbed that Seung wants to know.

1. White matter fiber pathways of the brain as depicted with diffusion-tensor MRI imaging. (images taken from Medium and Twitter)

3. Quote from "Sebastian Seung's Quest to Map the Human Brain". Written by Gareth Cook and published to the New York Times website on Jan. 8, 2015.

One day I hope to thank Dr. Seung for this image (I think I already thanked my mom – if not, mom, thank you ♥). It was visual expressions like these that allowed for clarity around the empirically ambiguous. Artistic expression used in the research setting would come to be a recurrent theme in the paths I traveled henceforth, and I'd grow to trust this synergetic way of understanding.



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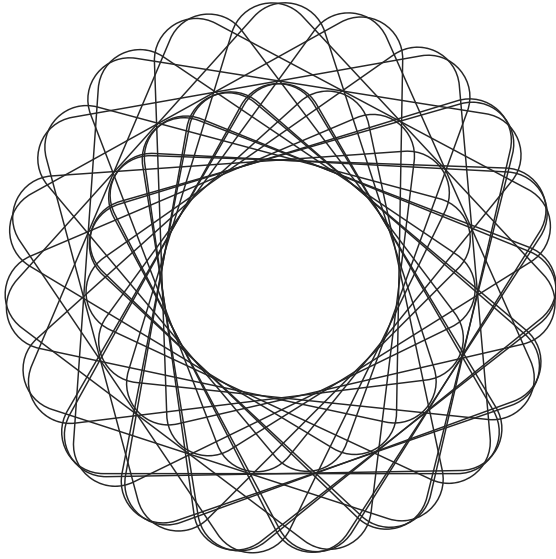
In February 2015, while in the midst of trying to complete my thesis project, I heard former VEVO CEO Rio Caraeff speak on a panel I was helping to produce at Soho House in West Hollywood. On somewhat of a tangent, Caraeff was talking about the intertwined nature of dreams, music and memory. His sentiments were so similar to my own, I thought it was fate. I went up to him at the close of the discussion to ask if he thought someone like me, an idealistic soon-to-be college graduate should apply to work at a company like VEVO to pursue these interests we clearly had in common. To my surprise, he told me VEVO would most likely never pursue any type of abstract products or features because "users weren't ready for those kinds of experiences". In that moment I felt defeated and naïve, but in hindsight I know our interaction was certainly fate. At SoundCloud too, the user-centric design focus limited the organization's ability to experiment with the platform's functionality, as these efforts were thought to distract from higher priority objectives.

VEVO and SoundCloud are now two companies past their prime. Some speculate they're already on the way out. While the audiovisual platforms still fighting it out are simultaneously still finding their way. No streaming platform has successfully introduced a fully transcendent experience, and this idleness makes me nervous: how can we realize higher forms of expression? And allow expression to provide increased awareness about the nature of our psyche. A matter we continue to traverse in the dark.

Media Arts and Practice endured many changes throughout my tenure at USC, efforts to refine the program to make it permanently possible at the university. I appreciate the educators and practitioners – Sonia Seetharaman, Virginia Kuhn, Elizabeth Ramsey, Dj Johnson, Raphael Arar and others who worked to get subversive modes of study recognized in an academic system. They gave us as students space to think freely, entrusting us with a philosophy to carry through all our life practices.

Now USC is also home to The Iovine and Young Academy: brainchild of Jimmy Iovine and Andre "Dr. Dre" Young that offers a bachelor's degree program in Arts, Technology, and the Business of Innovation. The school, in my opinion, is modeled after ideals birthed at MA+P, but with a more primary focus on business. Hoping to foster an environment that allows students to birth startups from their dorm rooms. The innovation school and others like it are indicators for how novel approaches are making their way into academia, already shaping future generations of development. It's an exciting time as new precedents are forming before our eyes.

Still in the early stages of this shift, we have room to reconsider how business incentives should impact creativity and research. Business acceleration frameworks ensure that resources are quickly allocated to new ideas, but they also impose indicators of success that influence how these ideas eventually materialize. As Rio Caraeff said, consumers aren't ready for a lot of what abstract thought and research have to offer. Yet it's companies, like VEVO, in the consumer service business that have the hidden power to probe the most pressing questions. The galaxy doesn't have purchasing power, nor can it vocalize when it's ready to be explored, and this may be why we know more about space than our own human brain.



As I write this I see that we're on the precipice of an interesting time. New collections of uncertainty will soon become prevalent, forcing us to innovate and yield extraordinary outcomes. Innovations of this kind will undoubtedly rely on art and design to come to fruition, and these disciplines will have to carefully defy inertia to rise to the occasion. This means expanding in different ways, through new structures that are deliberate support systems. At times, art in its many forms will reveal singular means for shedding light on what's mathematically obscure. And the same will occur vice versa. For this reason, art, design, math and science will come in closer conversation as the next chapter of innovation unfolds. Allowing us to keep extending deeper into the void and farther out toward the sky.

What proceeds now are a few of the infinite possibilities for how to mediate these disciplines and manifest their productive synergy. My hope is to create clarity around the information stored in my body and mind to streamline a discussion on this vision further. It's an accumulation of curiosities and conversations that will continue to take shape, as they interact with those who interpret them. To end this letter, I'd like to encourage everyone who's read this far to organize your own streams of consciousness and share if you feel inclined. The human collective traveled this far in time by speaking, listening, processing and understanding the world around us. Communication is our superpower and the future depends on it.

Signed,

Jordan Caldwell
Projector/
Manifest