

ART ON DEMAND
EMERGE
YIFEI ZHANG

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SIMILAR TO NEURONS' ABILITY TO WITHSTAND ADVERSE CONDITIONS, A COMMUNITY'S RESILIENCE IS DEPENDENT ON GROWTH AND RECONNECTION.

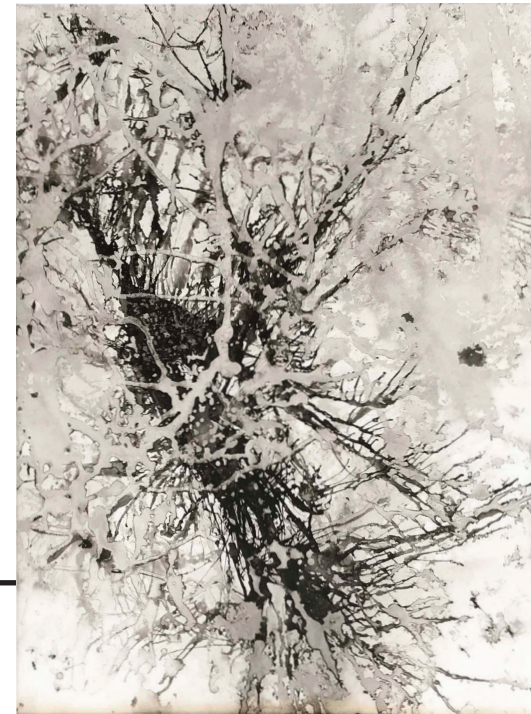
The acclaimed neuroscientist Santiago Ramón y Cajal (1852–1934) produced numerous delicate, freehand drawings inspired by what he saw while gazing through a microscope. His highly detailed, aesthetically arresting drawings complemented the scientific observations he was simultaneously making, and helped lead him to his discovery of neuron cells and their structure, and his theory that individual neurons can communicate over synapses, or gaps, in the nervous system. This discovery, known as the Neuron Doctrine, earned Cajal the Nobel Prize in Medicine in 1906. But was not until much later that Cajal's drawings were appreciated and understood as more than just illustrations of a scientific idea; indeed, Cajal's drawings demonstrate the ways that artistic inquiry into the structure of the nervous system could lead to an understanding of its nature.

Cajal's legacy of integrating art and science is echoed in the work of Coquitlam-based biomedical researcher and visual artist Yifei Zhang, whose series of drawings titled *Connections* are inspired by her investigations into the circuitry of the brain. Featuring exuberant and spontaneous gestures of mark-making with ink on paper, the series as a whole offers both mimetic and metaphorical insights into Zhang's scientific research. *Connections 1* is perhaps the most evocative of Cajal's visualizations: in this piece, traces of ink form a

web of black tendrils that vanish into the white of the page. The artist has made effective use of negative space in the composition, which seeks not so much to separate as to suspend the ink pathways, as in a synaptic cleft. In this way, the exposed white areas are suggestive of Cajal's theory that neurons can communicate across gaps, and the ink marks on Zhang's page are thus seen as a connected whole, despite the spaces between them. In other pieces from the series, Zhang balances negative space with ink blotches that seem to seep and bleed, fine linework, and touches of colour in a way that suggests protrusions or nodes. At times Zhang's drawings are topographical, as in *Connections 3*. But others, like *Connections 2* direct our focus to the space just below the skin, its fleshly hues bearing a particularly carnal appearance. The overall effect is one that grounds what could be seen as simply abstract compositions in an awareness of the body and its functions, at a microscopic level.

Thanks in part to Zhang's scientific background, all of *Connections* is unified by the artist's process of material experimentation. Her research-based artistic practice responds to the information age we currently find ourselves in, exploring how the nature of neuronal connections might reveal truths about our own interpersonal connections. The data visualization expert Manual Lima has written that:

"[t]he complex connectedness of modern times requires new tools of analysis and exploration, but above all, it demands a new way of thinking. It demands a pluralistic understanding of the world that is able to envision the wider structural plan and at the same time examine the intricate mesh of connections among its smallest elements."¹



In exploring the parallels between neuronal and social networks, Zhang's work embodies the pivot that Lima describes, from envisioning a wider structural plan to examining the intricate mesh of connections among its smallest elements. Together, they issue forth a dialogue that shifts perception from the micro- to the macro-scopic, resembling symbiosis — the interconnectedness of all things. In her research, Zhang was struck by the resilience of neuronal networks. Comparing this to the perseverance of communities through the Coronavirus pandemic suggests a corollary: similar to neurons' ability to withstand adverse conditions, a community's resilience is dependent on growth and reconnection. Likewise there is hope that our relationships remain strong in spite of separation.

- CALVIN BERGEN,
EMERGE CURATOR

¹ *Visual Complexity: Mapping Patterns of Information* (New York: Princeton Architectural Press, 2013), 45.

FRONT COVER: *CONNECTIONS 2*, 2020, INK ON PLANT BASED PAPER, 24 X 18 IN.

LEFT: *CONNECTIONS 1*, 2020, INK ON PLANT BASED PAPER, 24 X 18 IN.

IMAGES COURTESY OF THE ARTIST.

YIFEI ZHANG

Yifei Zhang is a visual artist whose work is inspired by the research she conducted on Alzheimer Disease while working as a PhD candidate in Biomedical Sciences, when she became fascinated by the complexity and beauty of neuronal networks under the electron microscope. Her work is deeply influenced by networks, whether they are connections that parallel neuronal networks or ones that support our social structures. She uses a variety of tools such as calligraphy brushes, bamboo pens, glass droppers, and spray bottles to apply ink and water on paper. Zhang earned her Bachelor of Fine Arts from Emily Carr University of Art + Design in 2018. She is currently based in Coquitlam, BC.



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GALLERY MUSEUM

ABOVE: *CONNECTIONS 3*, 2020, INK ON
PLANT BASED PAPER, 28 X 22 IN.

IMAGE COURTESY OF THE ARTIST.

GRAPHIC DESIGN BY CAMILLE CANDIA