

## **Yahriel Salinas-Reyes**

### **Yahriel Salinas-Reyes' Intellectual Framework and Phases of Approach:**

The framework consists of two phases to unravel the nature of intelligence.

Phase I: Understanding The Divided Self and Existential Despair

Header: A Trip Through Insanity - a perfectly rational adjustment to an insane world.

Motivation: Schizophrenia cannot be understood without understanding despair. Children do not give up their innate imagination, curiosity, dreaminess easily. You have to love them to get them to do that.

Stage 1: Alogia – Poverty of Speech and Senses

Stage 2: Autism –Realism and Logicism

State 3: Ambivalence – State of Chaos and Hysteria

State 4: Affect Blunting – Emotionless and Expressionless

Outcome: Pandemonium and Complete Fracturing of The Self and Nature

Accessories: Mania and Madness, Paranoia and Delusions, Psychosis and Schizophrenia

Revelation: We are effectively destroying ourselves by violence masquerading as love. Whether life is worth living depends on whether there is love in life.

Phase II: Unraveling The Nature of Intelligence and Human Ingenuity

Header: Creative people who can't help but explore other mental territories are at greater risk, just as someone who climbs a mountain is more at risk than someone who just walks along a village lane.

Motivation: Madness need not be all breakdown. It may also be break-through. It is potential liberation and renewal as well as enslavement and existential death.

Stage 1: Youthfulness – Vitality and Radiance

Stage 2: Imagination – Idealism and Irrationalism

Stage 3: Curiosity – State of Wonder and Exploration

Stage 4: Dreaminess – Absorption, Abstraction, Distraction, and Forgetfulness

Outcome: Dawn of New Age and Realization of The Natural Self and Frontiers

Accessories: Peace and Tranquility, Freedom and Healing, Joy and Growth

Revelation: The range of what we think and do is limited by what we fail to notice. And because we fail to notice that we fail to notice, there is little we can do to change; until we notice how failing to notice shapes our thoughts and deeds.

**Human Ingenuity Statement:** Here is a simple sign that Yahriel Salinas-Reyes is a genius, not just talented but a true genius. It is a simple rule devised by the philosopher Schopenhauer who distinguished the difference between talent and genius as follows: he said talent hits a target no one else can hit, a genius hits a target no one else can see. What he meant is that talent is really good at outcompeting others. For example if you're talented at something you can do something with ease that other people find difficult. Whereas a genius has nothing to do with besting other people at something they've already established as being important, instead a true genius is about being so good at something that you're ahead of your time that other people don't know yet that what you're doing is important or valuable, and so the talented person is the one who is recognized for their skill. The genius Yahriel is the one doing something no one else can even conceive of doing. Talent hits a target no one else can hit. A genius hits a target no one else can see. Yahriel is one who can see the hidden world of wonders and the invisible grand mysteries of the universe.

### **[Summary of Research Proposal]**

Project Funding Solicitations: For this project funding I will be soliciting various sources, namely, The NSF-Mercury Project (\$20 Mil) Partnership for a degree proposal submitted by a faculty on my behalf; The NSF-GRFP; GFSD; DOE Computational Science Graduate Fellowship; The Google Fellowship; as well as Fulbright Open Study/Research Award X National Geographic Storytelling Fellowship, a joint-opportunity for a study abroad experience. <https://www.ssrc.org/programs/the-mercury-project/nsf-mercury-project-partnership/> ; <https://us.fulbrightonline.org/fulbright-nat-geo-fellowship>

Synopsis: This new interdisciplinary field of study captures the essence of Human Ingenuity, focusing on the exploration of schizophrenia and psychosis and the idea that chaos theory and theory of confusion may serve a function rather than being solely detrimental. The project title also highlights the intersection of psychiatric thought, neuroscience, and social justice, emphasizing the potential global impact of this research. By using captivating and thought-provoking language as well as Anthropology-Engineering methods, the proposed scientific story aims to engage readers and spark their curiosity.

**\*\*Project Title:\*\*** "How He Got His Scars: The Nature Physicist Explores Abnormal Human Ingenuity and the Science of Madness and Mental Health in Neurobiological Representations of Schizophrenia and Psychosis."

**\*\*Summary:\*\***

In today's rapidly changing world, we often struggle to understand the present before it becomes the past. This proposal aims to shed light on the function of madness and chaos, not to undermine its toll on individuals, but to unravel the problem it is meant to solve. Building upon R.D. Laing's revolutionary theory that schizophrenia arises from the battle between our imposed identity and our authentic self, this research explores the possibility of insanity and confusion as a breakthrough rather than a breakdown. Laing theorised that insanity could be understood as a reaction to the divided self. Instead of arising as a purely medical disease or psychotic behaviors (i.e. a common symptom of schizophrenic traits), schizophrenia was thus the result of wrestling with two identities: the identity defined for us by our families and our authentic identity, as we

experience ourselves to be. When the two are fundamentally different, it triggers an internal fracturing of the self. Comprehensively, the label of **\*\*Madness and Confusion** is defined as a naturally sane reaction to an insane world\*\*. By applying the concepts of entropy and chaos theory to model the dynamics of social-behavioral systems, we aim to study schizophrenia/psychosis and other neurological abnormalities, morphologies, and ingenuity of the human brain.

Despite the initial controversy surrounding Laing's existential perspective, there is immense value in delving into the personal, interpretive, and small-scale aspects often overlooked in traditional psychiatric narratives. We propose utilizing a fundamental method of studying neurobiological dysfunctions and abnormal functions/morphologies of the schizophrenic brain. This will help uncover correlations and causalities between the active phase-matter in schizophrenic traits and other related disorders.

The motivation behind this study stems from the world's failure to effectively utilize the groundbreaking discoveries in neuroscience, global public health, and social sciences. Through rigorous research and the development of a scientific method backed by advanced instrumentation, our objective is to provide foundational evidence for a clinical social understanding of schizophrenia and its related traits. This paradigm shift, rooted in biomedical-analytical and logical-mathematical scientific theory, will facilitate the advancement of global public health.

To achieve meaningful impact, we must engage in a truthful dialogue free from knots of hatred, revenge, jealousy, and malice that taint our words. By exploring the history of indigenous and Latin American cultures, anthropology-engineering, science and technology, psychiatry and neuroscience systems, and social justice, we can create an open and inclusive platform for transformative research.

In conclusion, our research proposal "How He Got His Scars" aims to uncover the intricate relationship between madness and confusion, mental health, and the human brain. By merging scientific methods with social impact, we can pave the way for advancements in both individual well-being and global public health. It is high time we embrace this ancient paradigm of psychiatric thought, combining research and development with a deep understanding of cultural diversity, to drive positive change in society.

Other Relevant Coursework includes Latin American Anthropology: Race, Class, and Gender at Iowa State University Liberal Arts and Sciences as part of the U.S. Latino/a Studies Program.

## **[Research Abstract]**

### **Research Title:**

*Unraveling the Neurobiological Landscape of Schizophrenia: A Multidisciplinary Approach Informed by Numbers, Shapes, and Prediction*

### **Abstract:**

In the realm of advancing neuroscience, public and global health, molecular and biotechnology systems engineering, and biomedical data science and informatics, the enigma of schizophrenia

stands as both a challenge and an opportunity for scientific exploration. This proposal seeks to illuminate the intricacies of schizophrenia through a rigorous scientific method, integrating the foundational elements of Numbers, Shapes, and Prediction into the fabric of our investigative framework.

### 1. Numbers: Data Capture and Monte Carlo Integration

Our scientific journey commences with an unwavering commitment to numerical precision. Employing state-of-the-art neuroimaging techniques, we will embark on an exhaustive data capture initiative. Through the meticulous acquisition of neuroanatomical, neurodivergent, and neurophysiological data from diverse populations, our objective is to construct an extensive and multidimensional dataset that encapsulates the nuanced dimensions of schizophrenia. This reservoir of data will form the bedrock upon which our mathematical modeling and scientific inquiries will be founded.

To navigate the inherent complexity of this venture, we will harness the power of Monte Carlo Integration techniques, effectively engaging probabilistic simulations. This methodological approach will enable us to traverse the intricate interplay of variables within the neural landscape of schizophrenia, accounting for the stochastic nature of neurobiological phenomena. By fusing data-driven insights with probabilistic modeling, our aim is to unveil the concealed patterns and emergent behaviors that underlie the neurobiology of schizophrenia.

### 2. Shapes: Mandelbrot Set and Fractal Geometry

In our pursuit of understanding, we delve into the realm of geometric complexity. Schizophrenia, akin to the enigmatic Mandelbrot set, manifests self-similarity across multiple scales. We shall leverage the mathematical elegance of fractal geometry to explore the recursive patterns inherent in neurobiological representations of schizophrenia. By quantifying the fractal dimensionality of neural structures and their aberrations, we aspire to elucidate the underlying geometrical signatures of this intricate disorder.

Fractal analysis will provide us with a potent lens through which we can discern the intricate geometries of neural connectivity, unraveling the non-linear relationships that define the topological architecture of the schizophrenic brain. Through the synergy of fractal geometry and neuroimaging data, our goal is to unearth novel insights into the spatial organization of neuroanatomical features, shedding light on the fractal nature of neurodivergence.

### 3. Prediction: Dimensional/Spectral Analysis to Understand Causality and Correlation

As we navigate the labyrinthine landscape of schizophrenia and psychosis, our scientific odyssey extends to the realm of prediction and understanding causality. Employing advanced dimensional and spectral analysis techniques, we aim to disentangle the intricate web of causative factors and correlations that govern the neurobiology of schizophrenia.

Dimensional analysis will empower us to identify the critical dimensions that exert a profound influence on the emergence and progression of schizophrenic traits. By dissecting the spectral signatures of neural activity within these dimensions, we seek to unveil the underlying dynamics that govern causality within the realm of neurodivergence.

Our multidisciplinary approach transcends traditional psychiatric narratives, aligning with R.D. Laing's existential perspective that recognizes the value of personal, interpretive, and small-scale

aspects often overlooked. Through the harmonious integration of Numbers, Shapes, and Prediction, we aspire to illuminate the neurobiological essence of schizophrenia, uncovering correlations and causalities within the active phase-matter of schizophrenic traits. This holistic understanding will not only advance scientific practice but also inform precise health diagnoses and innovative treatments, ultimately propelling the field of global public health forward.

In conclusion, our research endeavors to unveil the profound mysteries of schizophrenia through the seamless integration of mathematical modeling and multidisciplinary inquiry. By harnessing the power of Numbers, Shapes, and Prediction, we aim to transcend the boundaries of traditional psychiatric narratives, embarking on a transformative journey toward a deeper comprehension of neuroanatomy, neurodivergence, and the intricate web of neurobiological disorders. This pioneering approach holds the promise of ushering in a new era of precision medicine and enhanced global well-being.

#### Advancing Knowledge and Broader Impacts:

This research holds the potential to advance knowledge within the field of neuroscience by providing unprecedented insights into the neurobiological mechanisms underlying mental health disorders. By leveraging MEMS technology and interdisciplinary collaboration, we aim to uncover novel biomarkers, therapeutic targets, and personalized treatment strategies.

Furthermore, the broader impacts of this research on society are profound. Mental health disorders represent a global health crisis, with significant social and economic consequences. The development of precise diagnostic tools and innovative therapies based on the neurobiome's understanding has the potential to transform mental healthcare. It can lead to early detection, personalized treatments, and improved outcomes for individuals suffering from these disorders.

In summary, my proposed research at the convergence of precision engineering and neuroscience seeks to decipher the multiscale neurobiome, offering a new frontier in the understanding and treatment of mental health disorders. This interdisciplinary endeavor not only promises to advance scientific knowledge but also holds the potential to alleviate the burdens of mental illness, thereby making a significant societal impact.

#### **Title of Project:** *Ancient Maya Engineering: Uncovering the Innovations of a Lost Civilization*

**Brief Project Summary:** In this project, I aim to explore the engineering marvels of the ancient Maya civilization, focusing on their innovative techniques in architecture, water management, and urban planning. By studying ancient Maya sites in Mexico, I seek to uncover the secrets of their success and understand how their engineering practices can inform modern sustainable solutions. This project is important as it sheds light on a lesser-known aspect of ancient civilizations, showcasing their ingenuity and offering valuable lessons for contemporary engineering practices.

**Describe the skills of your team members, and tell us why they are necessary to the success of your project:** My team consists of archaeologists specializing in Mesoamerican cultures and historians with expertise in ancient engineering practices. Their skills are essential for interpreting the archaeological evidence and historical texts related to the ancient Maya.

Additionally, local collaborators from Mexico provide invaluable insights into the cultural context and help facilitate access to archaeological sites, enhancing the authenticity and depth of our research.

**Do you or your Team Members already have any media commitments or interest for this project? This includes media commitments already held by your home institution or other funding bodies:** Yes, our team has secured commitments from National Geographic for coverage of our project. Additionally, our home institutions have expressed interest in featuring our research in their publications and media channels, providing a platform to share our findings with a wider audience.

**In one or two paragraphs, please describe what skills, attributes, and/or experiences make you uniquely qualified to implement this project. Please include any relevant information not in your CV that you wish to share:** As a graduate aerospace, aeronautical, and mechanical engineering doctoral student specializing in neuroscience and mathematical sciences, I bring a unique interdisciplinary perspective to this project. My background in computational and data-enabled sciences equips me with the analytical skills necessary for interpreting complex archaeological data. Furthermore, my research experience in neuroscience has honed my attention to detail and critical thinking abilities, which are crucial for unraveling the mysteries of ancient Maya engineering.

**In one or two paragraphs, please describe your career goals over the next 5 years and tell us how receiving a grant from National Geographic will help you achieve them:** Over the next 5 years, I aspire to become a leading expert in the field of ancient engineering, bridging the gap between archaeology and engineering. Receiving a grant from National Geographic will provide me with the resources and credibility to pursue this path. It will enable me to conduct groundbreaking research, publish influential papers, and engage with the public through media and outreach activities, establishing myself as a respected authority in the field.

**Background:** The ancient Maya civilization is renowned for its advanced understanding of mathematics, astronomy, and architecture. However, their engineering achievements remain relatively understudied. My project seeks to fill this gap by investigating the engineering feats of the ancient Maya, such as their impressive pyramid structures, intricate water management systems, and innovative agricultural practices. By exploring these aspects, I aim to shed light on the technological prowess of the Maya and the factors that led to the decline of their civilization, offering valuable insights for contemporary engineering practices and sustainability efforts.

### **Objectives:**

- Conduct fieldwork at several ancient Maya sites in Mexico to document and analyze engineering features.
- Collaborate with local archaeologists and historians to gain insights into the cultural and historical context of the engineering practices.
- Publish research papers and present findings at conferences to contribute to the academic understanding of ancient Maya engineering.
- Engage with local communities and stakeholders to raise awareness about the importance of preserving ancient heritage and promote sustainable tourism practices.

**Methods:** The project will be divided into several phases, including fieldwork, laboratory analysis, data interpretation, and publication. Fieldwork will involve surveying and mapping ancient Maya sites, documenting architectural features, and collecting samples for analysis. Laboratory analysis will include radiocarbon dating, material analysis, and 3D modeling to reconstruct ancient structures and understand their engineering principles. Data interpretation will involve collaboration with experts to analyze findings and draw conclusions about ancient Maya engineering practices.

**Communication and Engagement:** Stakeholders in this project include local communities, archaeologists, historians, and government officials in Mexico. We will engage with these stakeholders through community meetings, workshops, and public presentations to share our findings and gather feedback. Additionally, we will use social media, websites, and traditional media outlets to disseminate information and raise awareness about the project.

**Results and Impact:** The expected results of this project include scholarly publications, conference presentations, and public outreach materials. These deliverables will contribute to the academic understanding of ancient Maya engineering and raise awareness about the cultural heritage of the region. The impact of this project includes advancing knowledge in the field of ancient engineering, promoting cultural preservation, and inspiring future generations of engineers and archaeologists.

#### **Works Cited:**

- *Maya Civilization*. National Geographic Society, 2012, [www.nationalgeographic.org/encyclopedia/maya-civilization/](http://www.nationalgeographic.org/encyclopedia/maya-civilization/).
- Smith, A. H. *The Ancient Maya and Their City of Tulum*. National Geographic Society, 2018, [www.nationalgeographic.org/article/ancient-maya-and-their-city-tulum/](http://www.nationalgeographic.org/article/ancient-maya-and-their-city-tulum/).

#### **Additional Resources:**

- *Ancient Maya Engineering Techniques*. Maya Research Program, [www.mayarsearchprogram.org/mayan-archaeology/ancient-maya-engineering-techniques/](http://www.mayarsearchprogram.org/mayan-archaeology/ancient-maya-engineering-techniques/).
- *Maya Architecture and Engineering*. Britannica, [www.britannica.com/technology/Maya-architecture-and-engineering](http://www.britannica.com/technology/Maya-architecture-and-engineering).

**Conclusion:** In conclusion, this project will not only contribute to the academic understanding of ancient Maya engineering but also promote cultural preservation and inspire future generations to explore the intersections of archaeology and engineering. By uncovering the innovative engineering practices of the ancient Maya, we can learn valuable lessons for sustainable engineering solutions in the modern world.

**Final Thoughts:** I am excited about the opportunity to conduct this research and share its findings with the world. With the support of National Geographic, I am confident that this project will make a meaningful impact on our understanding of ancient civilizations and their engineering achievements. Thank you for considering my application.

**For an extended response, please see the full document.**

#### **Works Cited:**

- *Maya Civilization*. National Geographic Society, 2012, [www.nationalgeographic.org/encyclopedia/maya-civilization/](http://www.nationalgeographic.org/encyclopedia/maya-civilization/).
- Smith, A. H. *The Ancient Maya and Their City of Tulum*. National Geographic Society, 2018, [www.nationalgeographic.org/article/ancient-maya-and-their-city-tulum/](http://www.nationalgeographic.org/article/ancient-maya-and-their-city-tulum/).
- *Ancient Maya Engineering Techniques*. Maya Research Program, [www.mayaresearchprogram.org/mayan-archaeology/ancient-maya-engineering-techniques/](http://www.mayaresearchprogram.org/mayan-archaeology/ancient-maya-engineering-techniques/).
- *Maya Architecture and Engineering*. Britannica, [www.britannica.com/technology/Maya-architecture-and-engineering](http://www.britannica.com/technology/Maya-architecture-and-engineering).

#### **Additional Resources:**

- [Yahriel's GitHub Repository](#)
- National Geographic Grants Program
- Fulbright-National Geographic Digital Storytelling Fellowship
- [National Geographic Society](#)
- [Maya Research Program](#)

This draft provides a comprehensive overview of your project, highlighting its significance, objectives, methods, and expected impact. It also includes relevant works cited and additional resources for further reading. Please review the draft and let me know if there are any specific areas you would like to revise or expand upon.

#### **Budget Details**

> \*Total Project Budget: This amount should reflect the total scope of the project, including the amount requested from National Geographic Society and all other funding sources. You will be asked to provide additional budget information on the Budget Details tab.

> \$ 20,000.00

Here's a template for your budget that's easier to read and use. I've organized the categories and items more clearly, and I've added comments to guide you on what to enter in each field. You can customize the comments further based on your specific project needs:

Budget

Parent Category

Grantee Budget Category

2024



Total

Justification

Travel

Airfare

\$#.##

\$#.##

[Insert explanation of airfare costs]

Vehicle Rental and Maintenance

\$#.##

\$#.##

[Insert explanation of vehicle rental and maintenance costs]

Other Transportation

\$#.##

\$#.##

[Insert explanation of other transportation costs]

Lodging/Food

Lodging

\$#.##

\$#.##

[Insert explanation of lodging costs]

Food

\$#.##

\$#.##

[Insert explanation of food costs]

Equipment/Lab

Equipment & Supplies

\$#.##

\$#.##

[Insert explanation of equipment and supplies costs]

Laboratory Costs

\$#.##

\$#.##

[Insert explanation of laboratory costs]

Laboratory Tests

\$#.##

\$#.##

[Insert explanation of laboratory tests costs]

Compensation

Applicant and Team Members Compensation

\$#.##

\$#.##

[Insert explanation of applicant and team members compensation costs]

Assistants and Consultants Compensation

\$#.##

\$#.##

[Insert explanation of assistants and consultants compensation costs]

Evaluation

Measurement and Evaluation

\$#.##

\$.##

[Insert explanation of measurement and evaluation costs]

Other

Institutional Overhead

\$.##

\$.##

[Insert explanation of institutional overhead costs]

Dependent Care

\$.##

\$.##

[Insert explanation of dependent care costs]

Miscellaneous

\$.##

\$.##

[Insert explanation of miscellaneous costs]

SubTotal

\$.##

\$.##

[Insert subtotal calculation]

Here's a template for your budget that's easier to read and use. I've formatted it with clearer headings and sections, and added some examples for better understanding. Feel free to adjust the formatting and content as needed for your specific project:

NATGEOBUDGET

Budget Information:

> \*Total Project Budget: This amount should reflect the total scope of the project, including the amount requested from National Geographic Society and all other funding sources. You will be asked to provide additional budget information on the Budget Details tab.

> \$ 20,000.00

- Please enter the budget information you are requesting from NGS below, fitting items as closely as possible into the categories provided.

- To begin, click Generate Budget (the approximate start and end dates for your project are pre-filled).

- Utilize the comments field to elaborate on each entry, as requested per the guidelines.

- If you are not requesting funds for a particular budget category, please leave the field blank.

- Enter all amounts rounded to the nearest US dollar, with no punctuation or symbols (example: 5200).

#### Budget Categories:

##### 1. Travel:

- Airfare:

- Amount: #.## (Example: 1500)

- Justification: [Insert justification here]

- Vehicle Rental and Maintenance:

- Amount: #.## (Example: 800)

- Justification: [Insert justification here]

- Other Transportation:

- Amount: #.## (Example: 500)

- Justification: [Insert justification here]

##### 2. Lodging/Food:

- Lodging:

- Amount: #.## (Example: 1200)

- Justification: [Insert justification here]

- Food:

- Amount: #.## (Example: 700)
- Justification: [Insert justification here]

### 3. Equipment/Lab:

- Equipment & Supplies:
  - Amount: #.## (Example: 2000)
  - Justification: [Insert justification here]
- Laboratory Costs:
  - Amount: #.## (Example: 1500)
  - Justification: [Insert justification here]
- Laboratory Tests:
  - Amount: #.## (Example: 1000)
  - Justification: [Insert justification here]

### 4. Compensation:

- Applicant and Team Members Compensation:
  - Amount: #.## (Example: 3000)
  - Justification: [Insert justification here]
- Assistants and Consultants Compensation:
  - Amount: #.## (Example: 2000)
  - Justification: [Insert justification here]

### 5. Evaluation:

- Measurement and Evaluation:
  - Amount: #.## (Example: 1500)
  - Justification: [Insert justification here]

### 6. Other:

- Institutional Overhead:
  - Amount: #.## (Example: 1000)

- Justification: [Insert justification here]
- Dependent Care:
  - Amount: #.## (Example: 500)
  - Justification: [Insert justification here]
- Miscellaneous:
  - Amount: #.## (Example: 800)
  - Justification: [Insert justification here]

SubTotal: \$.## Total: \$.##

Replace #.## with your actual budget amounts and [Insert justification here] with your specific justifications for each item. Adjust the categories and sections as needed for your project.