ARC Renaissance Complex

ARC



Vision and Realization

Welcome to ARC Renaissance Complex

This document presents an introduction to **ARC Corporate and Institutional Communications** Specialized Solutions addressing Transition, Opportunity, Risk, Futures with focus upon STEM, Arts, and the Human Dimension

ARC is a confluence of people and projects initiated through the works of **Prof. Martin Dudziak and the TETRAD Group**

TETRAD Institute of Complex System Dynamics Intelligence Renaissance Industries Mirnova Foundation Argonauticus Oasis Clinic



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Introduction

Our World of Action Our Roots and Origins Our STEM and STEAM How things grew in the Garden of the ARC

Mission, Purpose, Raison d'Etre of the TETRAD Family

Science & Technology

TETRAD Institute

Mirnova Foundation

Business & Capital

Intelligence Renaissance Industries

Argonauticus

People, Society, Life

Oasis Clinic

TETRAD Family, Mission, Purpose



www.mirnovafoundation.tdyn.org

Consultancy and expert service with focus on specialized arts, antiquities, rare manuscripts, fashions, designs, and travels.

www.argonaut.tdyn.org

Relationships between TETRAD Institute and other organizations within the TETRAD Family









ARC Research and Development Today

We are active in twelve research projects and several applications of our research for the development of products and services.

These are describe more fully in other documents and websites, including:

http://tdyn.org

http://intelrenaissance.com

All of these activities are also expressly directed into Education and Communication, serving the needs of institutions within private and public sectors, including corporate, government and academic entities, through an offering of special projects and customizable engagements. This is explained further on the following pages ---->>>



Communications - Solutions

ARC Special Projects

These examples are provided here as portals into dialogue for what Dr. Martin Dudziak, individually or through a team, can provide for your institution.

The opportunity to work together begins with the need and desire within your institution for innovation in creating a solution that benefits your objectives. You have plans, goals, requirements. Here is an extraordinary opportunity for your institution to make use of Renaissance Thinking and Solution-Building. One exceptional person, or a team of your people and perhaps additional precision-selected specialists, to do extraordinary things for You.

The following Special Projects are offered as illustrations of the type of unique skillsets that can be yours – short-term, long-term, depending upon your needs.

These draw upon prior and current works spanning research, application, psychological and medical practice, and time in the forges and kilns of Life.

We present here the following:

[1] STEM-centric project ideas that derive from prior and recent research projects including educational activities for students in high school to university levels

[2] STEM-centric project ideas deriving from previous and ongoing application and commercial product development

[3] STEM + Social + Medical project ideas deriving from prior and current activities



Creative Potentialities





STEM-centric Projects (research & education origins)



STEM research-origin Projects [a]

§ ROAM - what it would be like, all aspects of such interstellar-travel life, the STEM aspects, the psycho-social, the contrasts with sci-fi books and films

§ Coadunatio

Librarium - student-projects to investigate, review, select, prepare books and other documents that should be in the Librarium

§ Mugenics - what it could be like, on future Earth, in deep space, and all the issues and challenges including ethics and politics, about conscious genetic re-engineering of the species

§ ERA

♦ ASTRIC – space, robotics, asteroids, terraforming, colonies

Tethys (EMME) – Earth, environment, climate, viruses, diseases

STEM research-origin Projects [b]

§ TND

 GHCM – quantum computers, real Synthetic Intelligence - what it would be like, an artistic approach (bringing in work with Cubit-Candide and the Vienna circle)

§ TBD

BMCC and especially Neuroplex and VESID – the science and the art of molecular biology, cells, viruses, bacteria, neurons

§ RTD

- Teranod what it can be like, real fusion power
- Cygnus what it can be like, new forms of energy from deep-space
- Sirius what it can be like, travel through wormholes, black holes

STEM education-origin Projects [a]

§ Robot drones Dancing to the Music – this can be a fantastic integration of science, robots, music, dance, more!

§ Tensegrity sculptures and architecture – this is also not limited to static art forms or traditional math and geometry!

§ The "Sands of Time" (chreodes, curves, arcs, and Nature) – the outcome could be mobile sculpture or dance or music or all together

§ The Maths of the Megaliths – yes, about Stonehenge and more.

§ Sounds of the Stars - visual, dance, music that connects with the "sounds" (different spectra) emitted by various stars and black holes



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STEM education-origin Projects [b]

§ Fibonacci meets Da Vinci and Darwin - aspects of Fibonacci series and other intersects between mathematics, visual arts, architecture

§ Viruses, bugs and Geometry --- connecting with environment, climate, and epidemiology – about geodesics and virus topologies

§ CubeSat of the Arts --- design and build am artistically expressive component that is incorporated into a CubeSat (small satellite of the type that many student-groups of different ages have done and these actually get launched into space)

§ The Ultimate Tetrahedron – more than just a sculpture or a math class, with some unexpected creativity of its own!













STEM-centric Projects (application origins)

Intelligence Renaissance Industries – 4 Divisions



STEM application-origin Projects (4 examples)

§ Terra - designing an Oasis-world, all the features and the media graphics – how this can enable the Arts to Reach and Change Society

§ KOIN - new currencies, new thinking about economics, money, capital, capitalism – how the Arts can drive forward new-thinking about socioeconomics

§ C4L - focus on robotics and synthetic intelligence in everyday life, at home, for special needs, for the community, bringing in architecture of Wright, Soleri, many others

§ OHI - Population health disparities, inequalities, and how the Arts can effect and drive forward Change in public health and lives



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Buy

Trade

Sell





Buy. Trade. Sell. Meet and Find Your Pleasure, Wealth and Power. We are the Desired Marketplace in the Desert of Your Hostile World. We Are Your OASIS. Hidden Treasures, Forbidden Pleasures. Potency. Rejuvenation. Youth. We Are Your OASIS.



stitute of Complex System Dynamics



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STEM + Social + Medical Projects (8 examples)



STEM + Social + Medical Projects

§ EMME - climate change and emergent zoonotic pandemic diseases

§ Neuroplex – research addressing several on-the-rise disorders and diseases and effects within individuals, families, communities

§ ASTRIC - asteroid operations and other applications in space

§ MWIN – maternal health, population equity and health education

§ ATS - all aspects of the psychosocial crises of abuse, trafficking, and subjugation, including development of novel media

§ IntAgros – focus upon climate change, water, crops, farming, future situations

§ **nPod** – a modular architecture for Earth and Deep Space, serving multiple needs including climate change, emergency, exploration

§ ARC – the Business of Integrating Art and Science in our present society

SPACE SCIENCES MEDICINE & PUBLIC HEALTH ENVIRONMENT & CLIMATE SCIENCES SOCIAL COMMUNICATION & LEARNING

The FAR FUTURE is closer than one may think



EMME =

Planetary Early Warning System for Emerging Infectious Diseases of pandemic risk to Humans (directly) or to Agriculture and Livestock

Satellite Data + Earth-based Monitoring + Public Education

Including custom-designed CubeSats with multiple functions

Employing social media and "ordinary social communications" extensively (!!!), using powers of Synthetic Intelligence ("AI")

Plus a bit of TETRAD "Magic" Tech www.emme.tdyn.org

Avoiding apother COVID 19 and WORSE is the Outcome from EMME the authentic SARS-CoV-2 virus








Neuroplex =

A theoretical-diagnostic-therapeutic approach to

Neuro-Cardio-Autoimmune-Inflammatory Disorders and Diseases – on the Rise Globally from Chronic Sustained Stressors both physical and psychosocial in their origins

Addressing causal agents not generally recognized in mainstream medicine and healthcare systems

Avoiding Deterioration of Individual Lives and Society as a Whole

PHIBER =

Population Health Informatics Biomedical Equity Resource

Required to Progress in areas of multiple diseases including deterioration of Maternal and Infant Health and Survivability Worldwide

Avoiding Racial and Species Decline and more Pandemic Impacts

§ Both work together in their STEM

§ Both offer robust commercial here-now social and commercial benefits along with long-term primal purposes and functions

§ Both make use of Information Technology that can be engineered by Students at multiple education levels

§ Both produce value-outputs for other businesses (computer sciences)

§ Both cultivate entrepreneurial and joint venture Tech Business Development attracting multinational commercial & financial partners

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Adhesions and other connective tissue aberrations (+ and – growth effects) - a major common element in these slow-evolving conditions

AVT (fundamental Arterio-Vascular Tribology – turbulence, friction, viscosity, lubrication, roughness; "Stribeck Curve' dynamics) NCB (Neural Cybernetic Bifurcation; chronic, asymmetric signal conflict and constructive/destructive interference)

> MAMDA (macro-anatomical mechanics, dynamics and activities) GST (neural Ganglia Signal Turbulence, chaos and non-linear attractor dynamics; "Lorentz-Clifford" phenomena)

Neuroplex-C Model Chronic Stressors leading to Inflammatory-and Autoimmune type (IAI) Processes [2]

ANCES - Autonomic Neurophysiological Control and Electrochemical Stress

Hyperelasticity (multiple tissues & organs)

IONA (Irregular, insufficient Oxygenation and Nutrient Absorption into bloodstream)

VBPV (fluctuating regional subnetwork Variations in Blood Pressure and Volume)



Bolide events 1994-2013 (Small asteroids that disintegrated in the Earth's atmosphere)



Frequency of small asteroids roughly 1 to 20 meters in diameter impacting Earth's atmosphere

3.3 Planetary Defense System for Diverting Asteroids from likely/certain **Catastrophic Impact with Earth**

ASTRIC =

Cooperative multi-modal reconfigurable robots + control theory

Plus a bit more of that TETRAD "Magic" Tech

Avoiding an Extinction Event (certainly for Humans)

- § Original focus mainly on Space and Asteroids critical needs now
- § Also focused strongly upon Earth and Climate applications ("EMME")
- § Offers robust commercial, social and cultural benefits along with long-term high-visibility purposes and functions
- § Makes use of CubeSats (involving Students at multiple education levels) for a variety of data acquisition and simulation tasks

§ Produces value-outputs for other businesses (agriculture, social media networks, the mining industry)

§ Cultivates entrepreneurial and joint venture Tech Business **Development attracting multinational commercial & financial partners**

§ Extends machine intelligence into cooperative networks of selfreconfigurable self-repair self-assembly teams and communities of





SPACE SCIENCES **MEDICINE & PUBLIC HEALTH ENVIRONMENT & CLIMATE SCIENCES SOCIAL COMMUNICATION & LEARNING** The FAR FUTURE is closer than one may think America's black-white maternal mortality gap is widening





Sources: U.S. ratios (2011-2013): CDC Pregnancy Mortality

MWIN =

Focuses public health initiatives including education and free access to DIY and public-access tests that can Save Lives especially of Pregnant and Recent Mothers – Restoring and Increasing Maternal and Infant **Health and Survivability Worldwide**

Avoiding Unncessary Early Mortality, Suffering and Family Distress

§ Both serve and advance Public Health for the Whole Society

§ Both offer robust commercial here-now social and commercial benefits along with long-term primal purposes and functions

- § Both can involve participation by Students, multiple education levels
- § Both produce value-outputs for other businesses (healthcare)
- Both cultivate entrepreneurial and joint venture Tech Business attractive a moultimetic release rescaled. Office a sight

MORTALITY GAP FOR U.S. MOMS

In the U.S., black women who are expecting or who are new mothers die at rates similar to those of the same women in lower-income countries, while the maternal mortality rate for white U.S. mothers more closely resembles rates in more affluent nations.



Maternal deaths per 100,000

United States

Comparison: Women of all races

44 Brazil 40 Malaysia

38 Mexico

36 Uzbekistan

NON-HISPANIC WOMEN **United States**

New Zealand Q **United Kingdom** 8 France

WHITE

124

Japan

day ag

ATS =

A systematic, information-centric, synthetic-intelligence enabled approach to one of the major and most critical, endemic, dangerous causal factors in Neuroplex type disorders:

Abuse, Trafficking, Subjugation and related social violence

A very new approach to addressing this Problem in Our Society

Reducing the spread and intensity and lethality of how we humans abuse and destroy ourselves and each other







To check and adjust irrigation systeme

Visualize sensors location in the map



IntAgros =

A Remarkable MARVEL Just Right, Just-inTime - for EVERYONE ANYWHERE It started as "Smart Farming" and "Smart Water" Intelligent automate-able control and regulation of Irrigation Fertilizers Pesticides THEN IT RAPIDLY EVOLVED INTO MORE USEFUL, SMARTER, ESSENTIAL

§ Calculate, regulate, control Water (irrigation), Fertilizers, Pesticides for small garden (home or backyard), small farm, big farm, huge farm

§ Serve as a Network of diverse multi-source fault-tolerant sources of generating (free!) Electricity

§ Serve as access points and repeaters for a MANET (WANET) – a mobile/wireless ad hoc network for rural/limited internet connectivity

§ Provide massive distributed, fault-tolerant parallel computing power to rural, disadvantaged, impoverished populations (Power the People!)

§ Serve as the "medium" for even better services than "Alexa" or "Siri"

§ Assist in cultivating and empowering entrepreneurial and joint venture Tech Business Development and Entrepreneurship

§ Build strength, endurance, and wellness within the People

Truthfully, IntAgros is Incredible. It is Revolutionary. It is Evolutionary. It is not only Cool Smart Technology but it is really Good for PEOPLE.







EcoVita AgroIntel System S-Water Module by MIRNOVA



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We Cannot Allow a Future that could easily Devastate Global Agriculture – These Risks Are Real, Now, Upon Us

Can it happen? It has, it does, it will, more.





Devastating pandemic blights, too?

Can we prepare, predict, have early warnings, get a head start, and avoid the Worst?



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nPod =

The Lego and KNex of Rapid-Deploy Rapid-Reconfigure Structures

It started with trailers and containers

It began with internet after-school places for kids in the jungle

It led to mobile labs in the petrochem industry and for emergency response and counter-terrorism applications

Then it took off to Space and the Infinite Beyond...

§ Different geometries for structures that can serve multiple purposes

§ Environmentally appropriate and ecologically sensible

§ Extreme reconfigurability including within the overall geometry of units and large composite (multi-unit, multi-storey) structures

§ Designed for Space use in orbital and lunar/planetary bases, habitations, and workspaces, but also for Earth applications

§ Most typical configurations can be assembled or disassembled within hours by only two able-bodied persons using non-electric hand tools

§ Designed to provide efficiency, safety, sustainability, and also comfort for the people (and/or robots) using the structures

§ Build strength, endurance, and wellness within the People

§ Each nPod is also capable of being a high-performance computing and internet module, and together, in one assembly or as a distributed network, they form building that IS an open-ended, can-grow-forever, parallel processing network, a fault-tolerant, redundant, asynchronous, MIMD supercomputer. People can work and live and sleep inside their supercomputer. What a Wild Idea. It sounds like it came from Outer Space. In a way, it did.

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3.7

More about the use of nPods as mobile clinics, MedAtriums, with a focus upon Diagnostics and Analysis, for simultaneously different diseases and other conditions which may be dormant and hard to detect.



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ARC itself

The Fine Art of Business integrating Art and Science

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Strategic Model for Research, Education, Application and Commerce



The Fine Art of Business in the Arts and Sciences

How the TETRAD business model can be applied and interpreted for the arts, humanities and sciences. How it can increase support, financially and in the community.

This is about the ecosystem and the eco-nomics of integrative science, art, philosophy, humanity.

This can be tailored to serve a variety of audiences including executive, management, marketing, technical and consumer participants.

Based upon projects conducted over a 30+ year history in several countries, spanning the corporate and academic spheres.



Future Horizons

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Our Path as Humanity leads ever. Forward Ad astra per aspera







We Are Already On Our Way

ARC Renaissance Complex



There is even more to the



It is all about our Future

As the one Human Race that we are

One Species

Which has still not learned how to live together as Community

As One Family, Extended but United,

Full of Variety yet Still One Species, One Race, living on

A thin film of habitable surface of a small rock orbiting a star in one galaxy...

RENAISSANCE = (R)EVOLUTION

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ARC

A totally new BioSphere. A different approach, a different architecture. (Not locked up and separated from the rest of the environment)

A psychosocial workspace, for living "Out There".

"Mugenics"

How must humanity adapt, and plan genetic re-engineering, adaptation of our future generations, for living in the radically different environments of Space -and... for being able to sustain our living on this rapidly changing and unpredictable Earth with Her climate changes and all the environmental consequences for our air, water, nutrition?

How can we avoid the scenarios of sci-fi novels and movies like "Interstellar"? How can we avoid Killing Ourselves as we have been doing for so long and Now, right now, with even unimaginable violence, hate, and terror? A LabSpace for the ROAM – a Future Way we will live and travel Out There.

Modeling, simulation, experiment, and also Trying It Out, Doing It. Right Here on Earth – and then, as soon as possible, Out There.

An EducationSpace.

For Our Future – Our Children.

To give them Vision of a Future that is more than Boring same-same dull-dull full of uncertainty, fear, shock, terror. To give them a Vision like Kids had when Sputnik, Gemini and Apollo went into the Heavens and Back, to the Moon and Back!

Not an EPCOT, not a Disney Fantasy, but

Real, Touch-it, Feel-It, Try-It, Learn-It, Dream-It into Your Future! Copyright © 2022 TETRAD Institute of Complex System Dynamics





Remember Who We Are

Where We Live - on a speck of dust circling a dot

And we have learned to stand, walk and talk

And We have sent a Message to the Heavens saying in a loud clear voice: Here We Are

Let Us Not Disappoint Those Who Hear and Look Forward to More

We Are Already On Our Way

EXO

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