Mirnova S.T.E.A.M. Seminars and Workshops

Creative Learning Experiences in Critical-Challenge Topics

Serving Communities and Teams engaged in Research, Management, Investment and Commercial Development and addressing needs for diversified education and communication

Introduction to a New Way of Communication, Interaction and Decision

The Mirnova S.T.E.A.M. Seminars and Workshops comprise a series of concentrated interactive events, customized for each audience and client group, prepared and facilitated by teams of recognized subject matter experts in different disciplines of science, technology, engineering, arts and mathematics. Topics are tailored to specific interests and needs of participants. The provider team experience spans the sciences, arts, and humanities and strengths in multi-disciplinary integration and application development. The range of cultural and personal expertise is global and includes specialists from several countries and cultures. Each team member actively works within academic, corporate, governmental, and private sectors. The Mirnova leadership teams for each seminar event are individuals with substantial professional excellence in subject matter and in communication, as well as sustained commitment to a philosophy of education that values exploration, innovation and accuracy in the context of classical foundations.

The seminars and workshops are conducted onsite at selected host locations around the world. There are online components during each type of event to accommodate distance-based participants, both presenters and attendees. Each event provides the basis for a continued and open-ended relationship of individual and team-based consultation and engagement with participant organizations. Each seminal event is unique and dialog-intensive. Some have distinct hands-on training components, while others are conducted principally through lectures and discussions. Interaction between participants is an essential component of each seminar, both onsite and online. Events generally involve three or more expert facilitators and an audience of participants.

Seminars are arranged through host institutions which include universities, companies, public institutions and non-governmental private organizations. Financial arrangements and other logistics are managed through the host institutions. Mirnova provides the optimized objective team of specialists for serving the host participants.
This document provides a set of introductory descriptions for several seminar events which are being offered on a regular basis. Those listed here are examples of what can be provided. Details depend upon location, host institution, audience, dates, and participants. Each seminar is ultimately customized and specifically tailored to meet the needs of the attending participants. Languages are customized to fit the presenters and participants together and always include English (direct or via interpreter).

We welcome you to a new and beautiful way of learning, sharing, cooperating, collaborating, and creating in the arts and sciences, for the benefit of our mutual growth and achievement. Our program provides customization, objectivity, and specialization that is not available from singular individuals or institutions. Our emphasis is upon addressing what is new, challenging, multi-functional, multi-cultural, and often challenging due to social, technical and organizational complexities. Please review this prospectus and contact us to learn more about the experts leading and facilitating these events, and the specific topics that can be defined for your needs. Contact us to discuss the ways you can attend and how your institution can be a participating host, and the ways you can support and extend our common goals of excellence.

The following are brief introductions to some of the diversity that our expert teams can provide today. These are provided as seeds for discussion regarding your institution’s needs and desires. Each theme has a unique set of experts who understand how to communicate theory and application to today’s audiences.

§1 Integrative Solutions for Critical Global Socioeconomic Challenges

Such challenges comprise Extreme Complex Systems, Catastrophic Threats and Civilization Impacts in areas including Agriculture, Education, Energy, Environment, Climate, Mass Communications, Population, Public Health, Space, Water and Wealth Management. We address your interests and activities in this broad domain. Solutions presented include both “STEM” and the use of the fine arts.

§2 EcoVita – Intelligent Technologies for Agriculture, Energy and Environment

Intelligent, networked, internet-based devices including smart sensors, robots, and data fusion are valuable tools for addressing the complexities of current and future needs in farming, food processing, rural energy production and distribution, and environmental management. Technologies presented and critically explained include those that are practical, impractical, and probable for consideration in these key industry and lifestyle sectors. The repertoire includes the AgroIntel network architecture of “smart farming” resources. The EcoVita Project is described further at http://mirnova.org/wp/our-work/projects/ecoagros-agribrains/

§3 ASTRIC – Astro-Terrestrial Robotic Interaction and Construction

Space robotics and complex human-machine interactions are essential for the next phases of space exploration, industrialization, commercialization and colonization. Asteroid mining and the defense of Earth and other human activity centers in space are of critical importance. The ASTRIC Project is presented as a knowledge base and system architecture that provides rich and extensible toolsets for these challenges. The ASTRIC Project is described further at http://mirnova.org/wp/our-work/projects/astric/
§4 Extreme Complex Systems – Identification, Modeling, Computability

Extreme Complex Systems ("XCS") are fundamentally intractable and unsolvable and yet they demand effective modeling and prediction. XCS challenges exist in virtually every environment and application, including those with major consequences from failure or sub-optimal performance. Issues and prospective solutions, both theoretical and practical, are presented in the context of concrete applications in aerospace, agriculture, environment and information technology, with the use of appropriate modeling and computation techniques.

§5 The LIBRARIUM – A Global Resource for Preservation, Innovation, Conservation and Sustenance

The LIBRARIUM Project is presented as a work-in-progress, one of Mirnova’s four key projects. Its rationale, structure, and contents, in both digital and physical form, emphasizes the encapsulation and integration of practical knowledge resources and tools for many “core technologies and crafts” involved in our civilization, including many that are only recently emerging as “new” and many that have been rediscovered from the past. The Librarium Project is described further at http://mirnova.org/wp/our-work/programs/preservation-library/

§6 NeoPlexus – Building a Generalized Heterogeneous Computing Machine

Supercomputing, massively parallel distributed network computing, and novel quantum computing architectures and algorithms are introduced in the context of how such technologies can be employed for practical “real-world” problems. The focus is upon understanding similarities, differences, and ways of integration for multiple approaches to the type of challenges that are faced in our world today. The NeoPlexus (GCM) Project is described further at http://mirnova.org/wp/our-work/projects/neoplexus-gcm/

§7 Cubits and Cues - Constructor Networks for Understanding and Building Intelligent Technology

Cubits are active information structures that comprise an open set of building blocks for knowledge engineering. They are employed in both educational and research environments as tools for group-based cooperation. Cues are introductory-level sets of multiple media types including textual and graphic materials that are designed to provide foundational understanding at different levels of competence within scientific and technical domains that are frequently considered to be innovative, exploratory, speculative, and new for many people.

§8 America, Russia, Eurasia, PanGaea – Psychosocioeconomic Dynamics of East and West

Histories of discovery, interaction, conflict and resolution between nations and peoples are examined critically, with a focus upon the evolution of relationships between China, Russia, Western Europe and the Americas, and the ways in which information has been employed both accurately and as a distortive force. We provide an objective set of perspectives including solutions for constructive development of new multi-national programs.
§9 Randomized and Stochastic Paths toward Solving Complex System Problems

An introduction to different ways of employing randomized models and algorithms including SPSA (simultaneous perturbation with stochastic approximation), cellular automata networks, thermodynamic and annealing systems, and quantum probabilistic methods. The focus is upon practical applications in engineering and science. Problems and solutions can be tailored to several areas of engineering and technology applications.

§10 Cooperative Human-Robotic Agents and Systems – Control and Optimization

Multi-agent architectures, cooperative and competitive robot networks, and human-machine interactions, are presented in the context of artificial (synthetic) intelligence algorithms and applications in engineering disciplines, with an emphasis upon issues and solutions for control, optimization, efficiency, and fault tolerance.

§11 Social and Unsocial Networks – Depersonalization and Mechanization in the Internet Age

Challenges in present-day society linked with large-scale use of internet-based social networks, virtual reality technology, “psychoanalytic” apps and the spread of misinformation and disinformation, all provide a technology space of both opportunity and risk at all levels. These issues are the focus of this type of workshop.

§12 The SELDON Series – PSED and Predictive-Effective-Constructive Informatics

Approaches based upon statistical and synthetic-intelligence models for large-scale predictive modeling and analytics are the broad subject, with attention to practical applications and to formal systematic as well as social limitations. The SELDON architecture, developed within the Mirnova community, is one example presented.

§13 Geometry and Form in Visual Arts as a Study in Historical Trends

Simplicity and complexity, linear and reverse perspective, and detail of content within painting, sculpture and other visual arts are presented with a view toward understanding the historical development and present-day evolution of personal and social belief systems and practices including socioeconomic paradigms. Attention is directed also to contemporary forms of expression including internet media and social networks.

§14 Quantum Technologies – Foundations, Biology, Computing, Information Systems

Quantum physics as a foundation, quantum biology, quantum information technologies (signaling and transmission), and quantum computing are all within the focal range of this type of event. There is a very solid team of expertise in this area and workshops can be customized to very specific or very generic interest areas. Our approach is to present information in objective, accurate, clear and usable forms for participants to use.
§15 Synthetic and Artificial Intelligence

The focus here is upon artificial intelligence, machine learning, pattern recognition, and the development of synthetic intelligence that can potentially develop self-learning and self-referential logics. The diverse team of experts can address specific application areas as well as fundamental and theoretical topics and issues.

§16 Critical Thinking in the Age of the Feuilleton

How the modern internet age and the dominance of the web, search engines, and personal devices is dominating and changing the ways people think, measure, evaluate and learn. The focus here is upon understanding the scope of social information dynamics and how institutions and communities can adjust, adapt and make effective use of the social information environment.

§17 Memes and Psychosocial Viruses

The focus is upon the challenges of memes that spread through mass-media and especially the internet, and problems of information accuracy and countermeasures for misinformation and disinformation. Workshops are directed toward development of information technology and social communications.

§18 Semiotics and Visual Symbols in Modern Hermeneutics and Hagiography

Examination of signs, symbols, and iconic representation in diverse cultures throughout history and in the modern era is presented in the context of developing tools and methods for interpretation and for analysis of mainstream media and social network usage. Presentations draw upon the works of many cultural periods.

§19 Artistic Intervention and Guidance in Science and Technology

The focus is upon the active role of the arts and humanities within the development of scientific and technical exploration and application, with particular emphasis upon the creative and innovative power of imaginative visual form and the control of STEM applications based upon social inputs and expectations.

§20 Mathematics, Geometry, Complexity and Structure

Mathematics and in particular geometry, number theory and topology are presented as pathways to appreciation and understanding of fundamental principles and practices governing evolution and development of form, structure and complexity in Nature and human-made systems. Particular attention is devoted to the works of scholars from diverse cultural and traditions throughout history, from ancient times to the contemporary era. Introductory information can be found at http://mirnova.org/wp/our-work/projects/ars-bio/
Key Principles Governing Each Seminar Event:

Education – addressing all levels, from Youth through Expert Professionals

Research and Applications – including critical reviews of many publicized claims, offers and products

Science Communications – emphasizing critical, balanced, objective understanding of First Principles

International Vision - Regional and Global – Diversity and Multicultural Cooperativity

Facilitators and Presenters:

Each seminar event varies. All team presenters and facilitators are well-recognized in their respective professional disciplines and communities. Please inquire directly to learn more about who are among the mentors and leaders of the seminars. Our team includes professors, scientists, artists, engineers and persons otherwise engaged within academic, corporate, governmental and private institutions or as independent researchers and authors. Our team of experts includes individuals from over 16 different countries.

Artistic Engagement and Creative Intervention:

The Fine Arts are incorporated into everything we do in the seminar events. This is an important component of the learning experience and the communications that attendees can extend afterwards in their work and life. All of the workshops can include creative artistic activities for the participants, both onsite and online. The role of the arts in scientific, technical and engineering disciplines is one that can be very fruitful and productive in addition to providing engaging experiences for all participants.

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