Synergy System Summary

Introduction

The Synergy System is an innovative AI Applied Application technology that represents an intelligent paradigm shift in AI technology. Synergy System is not just a tool, it is an early instance of a new software paradigm—one in which human intent, symbolic understanding, and neural execution converge into a single, trustworthy Solution. *Synergy System uses natural language processing (NLP) and other multi-modal information, and an AI Neurosymbolic world model with a unique program structure and methodology, collectively the ("Solution") to produce multi-functional, reliable computer application programs.* The Solution is used to specify, develop, and run multi-functional, trustworthy application functions in minutes versus months. Synergy's Solution is like having a highly skilled software development team at your command, but without the complexity and cost typically associated with using inadequate, unreliable AI tools.

AI projects continue to experience high failure rates, costs are excessive or prohibitive, AI resources are scarce, getting trustworthy results has been downright illusive, and in most cases, unobtainable. This Solution allows people to forego the need to produce many laborious, error-prone AI programming source code or incomplete data sets to develop trustworthy, multi-functional AI programs. Most other solutions are inherently ungrounded in reality when attempting to produce reliable applications, and most projects and applications are failing.

Synergy System is based on a unique Neurosymbolic AI world model that includes a program structure and represents years of research by mathematicians and AI and software engineering domain experts. In addition, the creators of Synergy System have significant entrepreneur and Fortune 500 executive and project experience and have built and deployed many major systems that were used by millions of users worldwide. Neurosymbolic AI is a hybrid approach which incorporates a composite architecture that integrates the machine learning capabilities of neural networks with the logical reasoning power of symbolic systems. Synergy's Neurosymbolic AI approach provides an answer to providing a practical world model for automatically building and running its AI program applications with human-interface actions and autonomous agents.

This Summary covers the Synergy System methodology, provides an overview of the Solution is, and concludes with the advantages and benefits and future implications.

Technology Solution

A new AI Technology Solution is needed using a world model with a program structure and a Neurosymbolic approach. Synergy System was invented to specify, build, run, and maintain computer application programs since the current AI tools and solutions in the market do not efficiently produce trustworthy, multi-function AI application programs. Synergy System knows how to solve this problem and provides the needed solution. The Solution encodes not just syntax but the deep semantics of a program structure that includes computational logic, data relationships, system interactions, and software engineering principles, and takes human intent and transforms it as an executable definition of system behavior. Without a Solution, AI projects and applications will stay mired in excessive costs and delays, and in most cases fail to meet objectives.

The Synergy System Solution represents a total alignment of human domain expertise, external information sources, and neural execution. As AI moves from narrow tasks to core operational roles, the need for solutions that combine learning with explicit meaning will become unavoidable. By grounding the AI in our robust methodology, we ensure that the resulting computer program is not a black-box mystery, but a mathematically verified intellectual property (IP) asset which also ensures that we maintain the agility of modern AI while achieving the rigorous reliability standards required for applications. The Synergy System uses a world model that includes a program structure hexagram and methodology and with neural-symbolic framework, which are collectively used to specify, build, and run multi-functional and trustworthy AI programs.

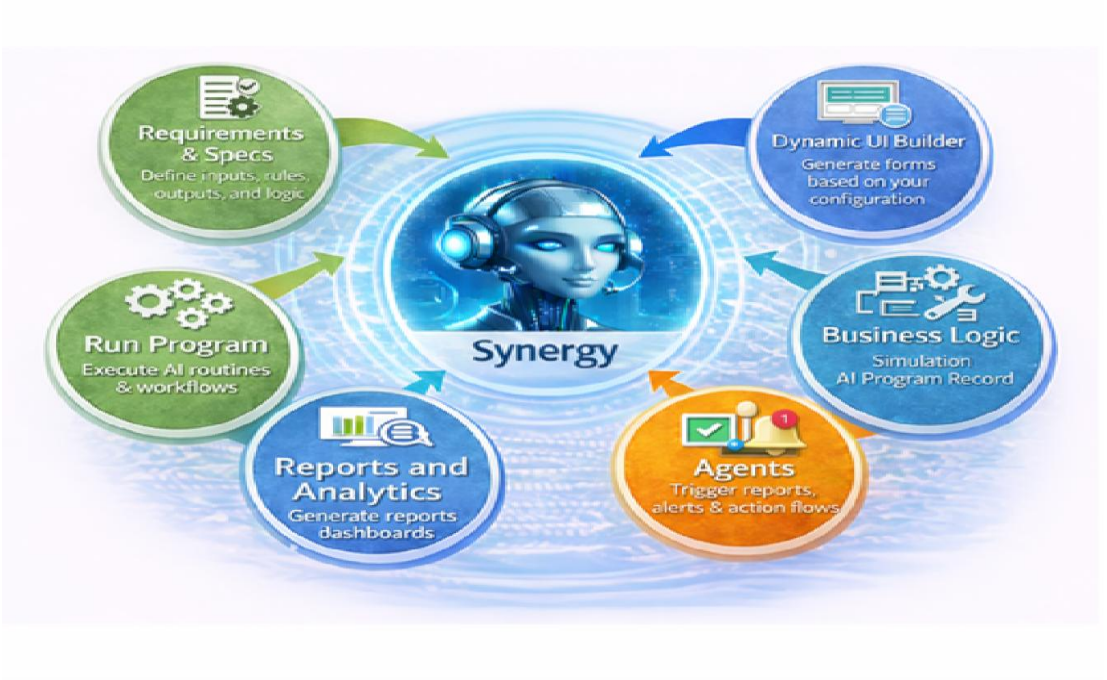
World Model: The world model includes a data model and dynamic data structures, process model, knowledge, and semantic techniques which include how to create relationships that replaces the need for If/Then or search/match logic that can make up 80% of a coded AI program. It also includes a program structure in the form of a hexagram with several components and the world model and program structure work together to guide and serve as an intelligent map or blueprint and a set of instructions for the AI components including the machine learning to produce computer programs. Without the model and program structure, other AI models, and tools such as AI coders and LLMs being used are ineffective, repetitive, costly, time-consuming, and unreliable.

Symbolic: The symbolic component uses NLP and human readable representations of knowledge for logical reasoning to enable computer users to use natural language to specify what they want a computer program to perform and respond to them in a way that makes sense to non-technical people. The NLP incorporates several utilities including AI assistants that incorporate ontologies developed by Synergy System to capture and interpret requirements, prompt and transform specific instructions to fine tune requirements and produce specifications that can be used by the neural networks and other AI programs.

Neural Network: Neural networks are among the most influential algorithms in machine learning. Synergy provides a unique model, program structure, and generalized and reusable algorithms. These algorithms include reusable sets of instructions or processes that can manage any array or combination of tasks or procedures. This approach helps keep neural networks from overfitting, i.e., failing to sufficiently see patterns and producing erroneous results and will help them be more precise. With Synergy System, the machine learning, and overall results such as getting data, searches, editing, calculations, decision making will be more streamlined and trustworthy.

Methodology

Synergy System is composed of several synchronized AI programs that use requirements and specs to guide the AI-powered automated phases below for specifying, building, and running a computer program in minutes instead of months.



Requirements and Specs:

Requirements begin with creating and saving a structured natural language requirements document that serves as formal symbolic instructions for program synthesis. Next, to start formalizing an AI program, an assistant structures the key components of a program application, assimilates information, and begins to train the neural networks (machine learning). Then to specify more detail to supplement the requirements as needed, another assistant asks intelligent questions, probes for clarity, and helps users articulate their vision with precision. The result is a specification that_translates requirements and prompted refinements and other relevant information making it suitable for building an AI program.

User Interface (UI)

The User Interface referred to as the dynamic UI builder uses the specs created from the requirements and specs phase above, which serve as a confirmation to guide the AI how the user wants to interact with the specified application functionality. The AI-powered UI builder then creates user forms or interface presentations without any programming code or elaborate data science training and captures user entered data to supplement other data accessed from other sources. The User Interface is integrated into the application being developed and will interact with the other components in the diagram above at the appropriate junctions.

Business Logic:

The AI business logic program is the most complex since an estimated 80% of an application involves business logic and is much more difficult to create than user interfaces and reports. We incorporate and use the program structure that is included in the world model together with a designated specification. The neural network processes the specification as an intelligent synthesis of functionality informed by the symbolic guardrails of our Solution. Because the specification and related information is precise and grounded with our Solution, business logic development is streamlined and rapid. There is also an edit program that produces output in natural language that audits and facilitates updates for key components of the application program to verify that it fulfills requirements and ensures quality standards are met.

Autonomous Agents

Synergy System's autonomous agents can be a combination of AI functions created with its unique development described in this document or can utilize external pre-built simple modules such as sending messages and emails. Synergy has an advantage since it can build autonomous functions to perform complex processes that conduct multiple tasks and are dependable. Synergy's agents can work independently with minimal to no human input based on a given goal and can assist with decision-making significantly reducing manual and repetitive tasks.

Reports & Analytics

The reports and analytics AI program is integrated with the Synergy requirements instead of using a separate outside program and interface. However, as an option Synergy System can also use an API and external data to produce reports. Therefore, reports and analytics can be produced in real-time based on data and AI processing that can change data on the fly. Audit capabilities are built-in as a special type of report whereby the distinct phases of development can be analyzed and displayed in a user-friendly report, which saves time going through black-box trial and error sessions and helps guarantee accuracy. Charts and graphs for analytics can be produced and updated from the same model and AI programs used to build and update the AI Applied Applications.

Run Program

The Run menu link includes an AI program that verifies a mathematical representation of the complete program built and is transformed with common tools into a machine language executable and is saved in a vector store (i.e., vector database) that includes mathematical patterns stored as composite objects that contain multiple attributes and the semantic essence of data in a multi-dimensional space. The result is production-ready software that performs user's objectives described in their original natural language interaction and other information that has been derived and verified.

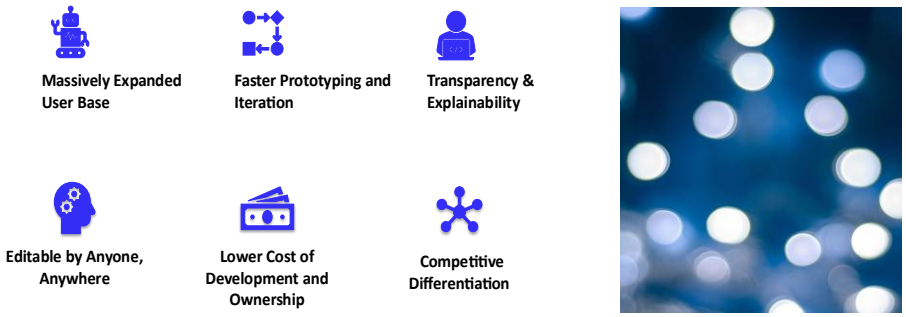
Administration

The Admin menu link includes several AI utilities that are used as tools to help develop and conduct support of the Synergy System Solution. The supporting utilities include an AI Assistant, LLM, databases, data dictionary, menu manager, operating systems, security, APIs, and others.

Benefits

The Synergy System Solution represents a breakthrough for how to take in human instructions and other symbolic data and utilize an AI world model with a unique program structure and methodology and implement it with a Neurosymbolic approach to build AI software programs.

Advantages/Benefits



Expanded Use Base: Having a user-friendly solution that uses natural language and human symbols to build applications expands the user base where more people can have AI functionality to solve real world and multi-functional problems.

Faster Prototyping: Ideas can now be specified and turned into prototypes and tested iterations in a fraction of the usual time giving people fast feedback. In fact, the time from prototype to built program can now be in minutes instead of months.

Transparent & Explainable: Being able to see the all phases of an application program in natural language instead of computer code or cryptic data sets and machine learning promotes transparency because key elements can be reviewed and explained by non-technical personnel.

Easily Editable & Trustworthy: Since there is a solid world model used and the application program build phase shows the output in natural language instead of technical jargon, the built application program can be edited and modified without expertise in AI programming or machine learning and can be verified as trustworthy.

Lower Costs: Because the Solution streamlines all the phases to automatically produce a functioning application program, costs of development and ownership can be dramatically reduced.

Competitive Edge: Organizations and individuals can bypass the usual labor and time wasted associated with more primitive AI coding and time-consuming machine learning using limited data sets. With Synergy System, productivity gains and better decision making can be realized.

Conclusion

We are moving beyond the need to use difficult and inefficient AI coding and/or training unpredictable machine learning with repetitive and unreliable data sets to create working computer programs. Synergy System demonstrates how a world model and hybrid AI approach has the potential to transform the way software applications are created and maintained. This paradigm shift replaces slow, difficult development with surprising speed and dependable application creation that facilities deployment of AI on a wide scale to meet muti-functional, specialized needs for any market, domain, or subject.

Synergy System is much more than a tool or just another development platform with a set of loosley coupled, often hard code programs that tied together with interfaces. Instead Synergy System is an AI-powered integrated Application System that takes in natural language and other symbolic data and automatically builds and manages application programs. It serves as a application program robot that learns as it goes and produces applications rapidly and reliably. There is no other AI System that does this.

In addition to being an AI Application System versus a tool or set of tools, Synergy System has built and partnered with companies to provide ready-to-use AI Applied Applications in multiple vertical markets including healthcare. And System System's can build and update new fucntionality for current applications or all new applications significantly faster and with the highest quality giving it an unparralelled advantage.