Greetings Dr Satyendra Narayan,

I am contacting you regarding a potential research topic that I have already begun working on.

 Following the summer of 2014, I was conducting my personal research on finding solution to explicitly define relationships of Modules, Interfaces and another relevant sub group that has direct impact over Software Paradigm influencing Software Architecture that in turn influencing Software Design Methodology. I have created a problem statement in the form of an incomplete proposal that was acknowledged by few members of faculty of Sheridan College and they did support my own proposed idea. They had suggested me come up with a good management plan and after they that they would help me apply for NSERC. However, I was very uncomfortable with the factor of limited funding imposing a deadline so forth to an area of research that I was uncertain myself. Moreover, I had looked over a dozen SDLCs, accumulated and read publications of them, in search of finding a recognized or even a conceptual process specially aimed for research process. I found that most of them were customized or in my terms “restrained” to producing an end product every cycle and according to me could not be deemed as an ideal research process since they all offered very limited freedom of exploration. So I created my own research pipeline called Time Independent Research Pipeline.  I had to leave that proposal incomplete as well because later on I realized this is all leading to frameworks of thought process or better termed “Inventive Problem Solving”. It was then, that I started looking over TRIZ and its potential applications in various industry. Limitations of TRIZ led me in search of more theoretical solutions providing more logically competent verification of its process. Out of many papers I skimmed through, these two papers really got my attention. Fortunately, C-K theory reflected heavily on its design process and made comparable arguments claiming itself to have better approach than most design processes known.

Topological structures for modeling engineering design processes

By Dan Braha, Yoram Reich

C-K design theory: an advanced formulation

By Armand Hatchuel, Benoit Weil

C-K design theory does outline its remarkable property of generating new parameters from an existing one in a much *focused manner* i.e it gives high degree of freedom in exploring subdivision of concept objects with respect with knowledge objects.

To informally present some of other the limitations I have discovered through my limited knowledge of topological spaces, few of them are:

         C-K theory has no mechanics to fully determine topology of its current space. To fully discover current space, all limitations must be known or solved for.

         C-K theory has no natural method to determine which sub-spaces or concepts to focus on such that discovered or expanded concepts will reveal other concepts that may just be the solution space.

         C-K theory has no initial steps nor focuses on key goal to determine whether it is part of an underlying space or host to finite sub-spaces. Realistically, spaces are always built upon a topology.

Due to above reasons, design process cannot be fully automated and process is always subjected to uncertain of time in regards of solving concepts.

In all theories, it is the freedom of generation of objects => birth of parameter that is pivotal.

C-K design theory paper, pointed out that inspite of Dan Braha’s amusing and repulsive remark  “Therefore, the availability, richness, and coherence of knowledge strongly influence the ability to obtain quality design solutions.” (defeats the sole purpose of inventive design process), paper points out to be valuable.

As I read forth, paper began covering basics of General Topology and that really captivated me. Paper itself proposed its own limitations, most of them are pointed out in C-K theory itself however I am unable to give my perspectives, due to lack time to even do so informally. Braha and Reich explain how through General Topology, functions spaces can viewed as and operations performed.

I made attempts to properly study General Topology however it was the history behind it that prevented me from doing so. I read briefly about Cantor sets, Russell’s paradox and how Zermelo- Fraenkel axioms that govern mathematics of this century and discovered that they had announced “the basic element of ZFC is the set itself. Therefore, all sets can only contain other sets.”

To convince you how my efforts have led me to the conclusion that fundamental ZFC theory themselves have failed to determine the identity of **a set and an element.**Which will inevitably lead to the question: **How exactly does a condition or set, with respect to another set or condition, gains the property of membership and non-membership and, with respect to an Element, gives the property of membership and non-membership?**

I have tediously worked on a solution towards it. I personally believe that many sources in internet that discouragingly either misleads in giving an answer through its complex experiments on number line or refutes the validity of such a question.

I have discovered the possibility of

         existence of single element, **f,** such that within a space multiple elements **seem**to exist

         the existence of super-element, **K** that defines such a set or condition such that, that set only has the property of membership thus ending the infinite cycle of set within a set or set encompassing a set.

I believe that the solution to this problem is the Final Frontier towards creating Artificial Intelligence.

I am contacting you, to provide me your expertise on this matter since you are most updated on recent publications. Most of all, I seek to know whether you consider my proposed question, a valid question.

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Regards,

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