# Abstract for my "Envisioned" PhD Thesis

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My envisioned PhD Thesis will demonstrate a communication system to answer the question: can computers help with creativity? For example, it will aid a user to create a novel painting with personal style. And certainly in regard of paintings, the final products should meet our visual satisfaction.

I believe that everyone has tremendous latent power to tap new inventions. If there were newer better media, this latent power would be transformed to talent. With this belief, I am inclined to say "yes" to the question and am anxious to prove I am right. But probably I am wrong or partially wrong. But at least, I would figure out better where those boundaries are.

"Whether or not computers can help with creativity" is a different question from "Can computers be creative?", while these two questions are closely related internally. Because both questions face some similar pre-questions, such as:

- What is creativity and how it happens?
- Can computational ideas help us understand how human creativity is possible? [1]
- Can a computer recognize creativity? [1]
- How to measure creativity

There are four phases of creativity according to Henri Poincare [2], named preparation, incubation, illumination and verification. With the involvement of a computer, what could be the creative thinking process? For now, I cannot picture the envisioned system to be built for my PhD thesis. So I will just use one of my current projects under development to briefly illustrate my idea.

EasyGami is a Tangible User Interface (TUI) and interactive system to help children to learn to fold origami and to encourage them to explore 2D-3D transformations. The system has a state-space graph, which is the knowledge base derived from current origami reservoir. When a kid comes up with a new 3D model when simply playing with the physical interface, the system makes it possible to add this new path to the dynamic knowledge base.

Reference:
[1] "The Creative Mind – Myths & Mechanisms", 1992, Margaret A. Boden
[2] "Science and Method", 1897, Henri Poincare