



## **FUTURE ENVIRONMENTS: GRAVITY DEFIANT ARCHITECTURE (GDA)**

**GEORGES KACHAAMY Ph.D. Assoc. AIA**

Director of the Center for Research, Innovation, &  
Design (CRID),  
Professor of Architecture

**ORCID ID:** <https://orcid.org/0000-0003-1845-7212>

**LINKEDIN:** <https://www.linkedin.com/in/georges-kachaamy-465a7549/>

**YOUTUBE:** [https://www.youtube.com/user/kachaamy/videos?view\\_as=publ](https://www.youtube.com/user/kachaamy/videos?view_as=publ)

**INSTAGRAM:** <https://www.instagram.com/georgeskachaamy/>

Throughout its evolution, architecture has crawled out of caves, settled on grounds, surfaced on water, climbed on pilotis, stood tall and even danced. Now it is about time to challenge itself, defy gravity and rise up. Gravity Defiant Architecture (**GDA**) is an innovative research topic about a futuristic architecture that utilizes available advanced technologies in order to liberate itself from the ground and float in the air. This study will identify the specific methods and applications that can generate architectural elements using the adequate designs, lightweight materials and technologies at hand in order to allow it the plausibility to defy gravity.

The work has evolved and progressed by generating designs, experiments, and prototypes as series of built environments that comprise in them sources from nature where people can release themselves from their daily tensed city lifestyle and rewire themselves with a once lost unison with nature. Then, in order to emphasize further on the spaces as getaways from the city within the city, and increase the symbolism behind the separation of that type of spaces from the urban fabric, the work has evolved through positive disruptions and literally levitated architecture from the ground and made it float in the air on a different plane than that of the city.

This work has led to the birth of “Rising Oases” series of prototypes in order to exhibit an architecture that can defy gravity within cities. The concept consisted of free-floating physical models of the built environments that uses natural resources (such as light, wind, water, flora and fauna) to help people unwind within the city. The prototypes were the results of the intensive ongoing research for the past 5 years which has led to many publications by means of articles, exhibitions, talks and even televised interviews (locally, regionally and internationally).

One of the results of the research has shown that some of the main components for the success and stability of the outcome are threefold; design, technology, and materiality. In addition to the composition and form, the importance is to understand the equilibrium and the influence of the dead load and its capacity to accommodate the live load within these objects. Obviously, the projects must use lightweight materials without losing its structural rigidity and strong enough technology that can levitate the weight of the structure and by that architecture.