

CASE STUDY

Pavlina Akritas

Associate Lighting Designer at Arup



How did you get to where you are now?

Engineering is not something I sought, but was something that I was encouraged to do.

My father has his own firm 'Akritas Consulting Engineers' in Cyprus where he provides an electrical, mechanical and environmental consultancy.

My favourite subject in school was mathematics and I also played competitive tennis. So my thought was, if I could do both at university, I didn't really mind what I was going to do with my life. Quite naive, I know, but I was only 16 when these decisions were made, and at that time I only wanted to play tennis.

I studied electrical engineering at the University of Illinois at Urbana-Champaign where I also played tennis for my university. I then tore both my anterior cruciate ligaments I was glad that I did not choose sports as a career! At least I had something to fall back on.

Having completed my undergraduate degree, I wanted to return 'home' to Europe. It was quite fashionable at the time to do a master's degree, and after

consulting with my family, I chose lighting as my career path.

I completed my master's degree in Light and Lighting at University College London and joined Arup as a graduate lighting consultant in 2007. I have been at Arup ever since.

If I think back at my 12-year career, I can't believe that I was lucky enough to do things and meet people that I never thought I would. From designing some of the most beautiful museums (including winning awards for their lighting design), to lighting fashion shows for Céline for Paris Fashion Week, to meeting famous artists, to working for a tech giant after they requested to have me on board.

I am humbled by where my path has taken me and glad that I gave engineering a chance. It was an unexpected career, but one I fell in love with.

What challenges do you face on a day to day basis?

Managing time to ensure that whatever I do is with the best of my abilities.

I am involved with a number of concurrent projects at the moment;

designing some, and leading others. I also lead the Arts and Culture business sector for our lighting design team in the UK, being responsible for business development strategy and seeking new project opportunities. In addition to this, I am also responsible for the training and development programme for our graduate lighting designers.

My main challenge is how to ensure that I give the same commitment to all. While I enjoy doing some more than others, they are all as important.

What is the biggest difference you noticed between work and university in terms of engineering?

At work there is less theory; instead there is more practical hands-on experience and 'playing'. I was never a big theorist; I enjoyed more action and doing things. And light is very visual - you need to see it to understand how it will behave with different materials and atmosphere. It's also very personal, we don't all necessarily like the same things. I like the challenge that we are set to shape the client's vision into

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reality. This is not our vision, it is our duty to shape and form the client's vision.

Real life example of engineering applied to your work.

The favourite part of my work is that you have a direct contribution to how a building will look, especially when you are designing for daylight. My speciality is designing daylight and electric lighting for museums and galleries where conservation is a big issue. The luminous quality of daylight cannot be replicated with electric lighting, so we are seeing many museums favouring daylight over electric lighting. One of the greatest challenges is how to minimise exposure to sunlight and control extreme fluctuations of brightness to an acceptable level without completely suppressing the dynamics of daylight.

How do you approach these problems?

Each challenge needs to be approached in a collaborative manner; it is important to trust

the team you are working with. For museums, we carry out workshops with the client to determine what the appropriate daylight conditions are, considering the sensitivity of the exhibitions on display. Typically for medium sensitivity objects this is 600 klux-hours per year.

We then create 3D computer models of the spaces and the surrounding buildings. This is used as the basis for further calculations and modifications. Most design decisions are checked mathematically and visually using this model.

Using local weather data, we calculate the cumulative light exposure over the course of the year. Based on the results we make recommendations to the architect for adjustments to the skylight/window shape, size, orientation and materiality. The calculations are repeated several times with varying parameters until the design criteria have been met. Sometimes it is necessary to use automated systems in

response to the natural variations of daylight. This is to ensure that the visitors enjoy the collections under the best possible light throughout the year - not too dark in the winter and not too bright in the summer.

To validate the design, we build scale models which we test under real sky conditions. If we are lucky, though, the client will have a 1:1 mock-up built to verify more accurately the daylight distribution and effect on the materials and wall colours.

What would your advice be to someone who aspires to be like you?

1. Strive for the highest quality in everything you do.
2. Be passionate about what you do.
3. Be curious about the world around you.



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