



# national science week 2013

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Solar power is a clean, renewable source of energy that has many advantages. We can put solar panels pretty much anywhere and generate electricity without creating noise or dangerous emissions. However, there are some disadvantages to solar power. Firstly, it has a very low efficiency, which means that only a small amount of useful power is developed from abundant sunlight. Secondly, the amount of power available varies a lot with the weather conditions and thirdly, shadow from trees, houses or power poles can further reduce the amount of power available. How we operate the panel also affects the amount of power available and there is a single unique operating point that gives us the maximum possible power. It is important to operate the panel at this changing optimal point to make good

use of the solar resource. Tracking this maximum power point is a complicated process and is the main focus of my research. In particular, I am considering what happens when the panel is partially shaded and how we can still get the maximum power out of the panel under these conditions.

Going through school I was always interested in science and maths, particularly in trying to come up with interesting ways to solve problems. When I finished school, I started a degree in Engineering as it gave me an opportunity to combine my science, maths and problem solving interests. In 2012, I started my PhD research project in the field of Solar Power, specifically looking at how to model complex solar power characteristics and achieve the optimal power under changing environmental conditions.

Engineering is a great opportunity to investigate the world in which we live and make a difference. Engineers work with structures, cars, boats, electricity, machines, robots, planes, computers, medical devices, water and many other things. If you look around the room you will probably see lots of things that Engineers have been involved in developing. Engineers design solutions to problems using imagination, innovation and science. The thing that I love most about engineering is the opportunity to develop something useful that hasn't been done before.



For further information: [www.utas.edu.au/engineering](http://www.utas.edu.au/engineering)