

3D printed nose wins design award

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A Victoria University of Wellington design student is the New Zealand finalist for the James Dyson Award 2014 for his Master's project—a 3D printed prosthetic nose.

Zach Challies, under the supervision of Bernard Guy and Ross Stevens from Victoria's School of Design, has created a shock-absorbing scaffold that sits under a traditional prosthetic nose. His printed prosthesis will be New Zealand's entry in the international design award, which will be judged in the United Kingdom with the winner announced in November.

In collaboration with a maxillofacial surgeon and a prosthetic wearer, Zach identified several issues with a traditional prosthesis and the way it held onto his client's face. "It's just a simple magnet connection, so gets knocked free easily," says Zach.

"I wanted to investigate where we could start to help out through design." His solution, a support fitted under a nose-shaped facade, was made using a 3D printer at a cost of under \$50.

"Utilising a multi-material printer, we're looking at different retention methods so it will be more secure on the face and provide a lot more security to the wearer," he says.

Zach says he wanted to give his client the opportunity to play sport again, which led to the second component of his design—a cheap version of the mould and a nose-shaped facade that could be printed in around two hours.

Before his cancer and rhinectomy, Zach's client enjoyed playing social sports. However, he is unable to lead an active lifestyle due to fear of his prosthesis being knocked loose. "To have the area beneath exposed would be a very traumatising experience," he says. "On top of that, if it gets damaged the replacement cost is around \$1,000."

With Zach's design, people who have to wear prosthetic noses have the option of replacing their traditional prosthesis with one of Zach's sporting versions.

"Traditionally the [prosthesis](#) is there to replace the missing anatomy, whereas we're focused on trying to enhance the wearer's lifestyle through design," he says.

Zach is continuing to improve his design. "The goal is to create a

prosthetic that's desired by the wearer. It's also about challenging preconceptions of what a facial prosthetic should be."

For more information visit

www.jamesdysonaward.org/profile/zschallies/

Provided by Victoria University of Wellington

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