

Darren Isaacs

South Africa ➤ The Netherlands

Computational Redesign of Peptilgases



What's your project about?

My PhD focuses on **engineering serine proteases** with the guiding aid of **computational** tools and methods. We are interested in the **reverse reaction** of serine proteases which is **peptide/protein ligation**. We hope to apply these enzymes for **synthesis** of peptides of **medical** importance. Overarching goal is to engineer **superior enzymes** for **peptide synthesis**.

Project Partners



Rijksuniversiteit Groningen is an internationally oriented university in The Netherlands with a vast **academic tradition** and focus on three main pillars: **energy, healthy ageing** and **sustainability**. Under the supervision of **Prof Marco Fraaije**, the T4BBI project is carried out at the Group of **Biocatalysis**, focused on the research of **co-factor dependent enzymes**.



**Rijksuniversiteit
Groningen**



EnzyPep B.V.



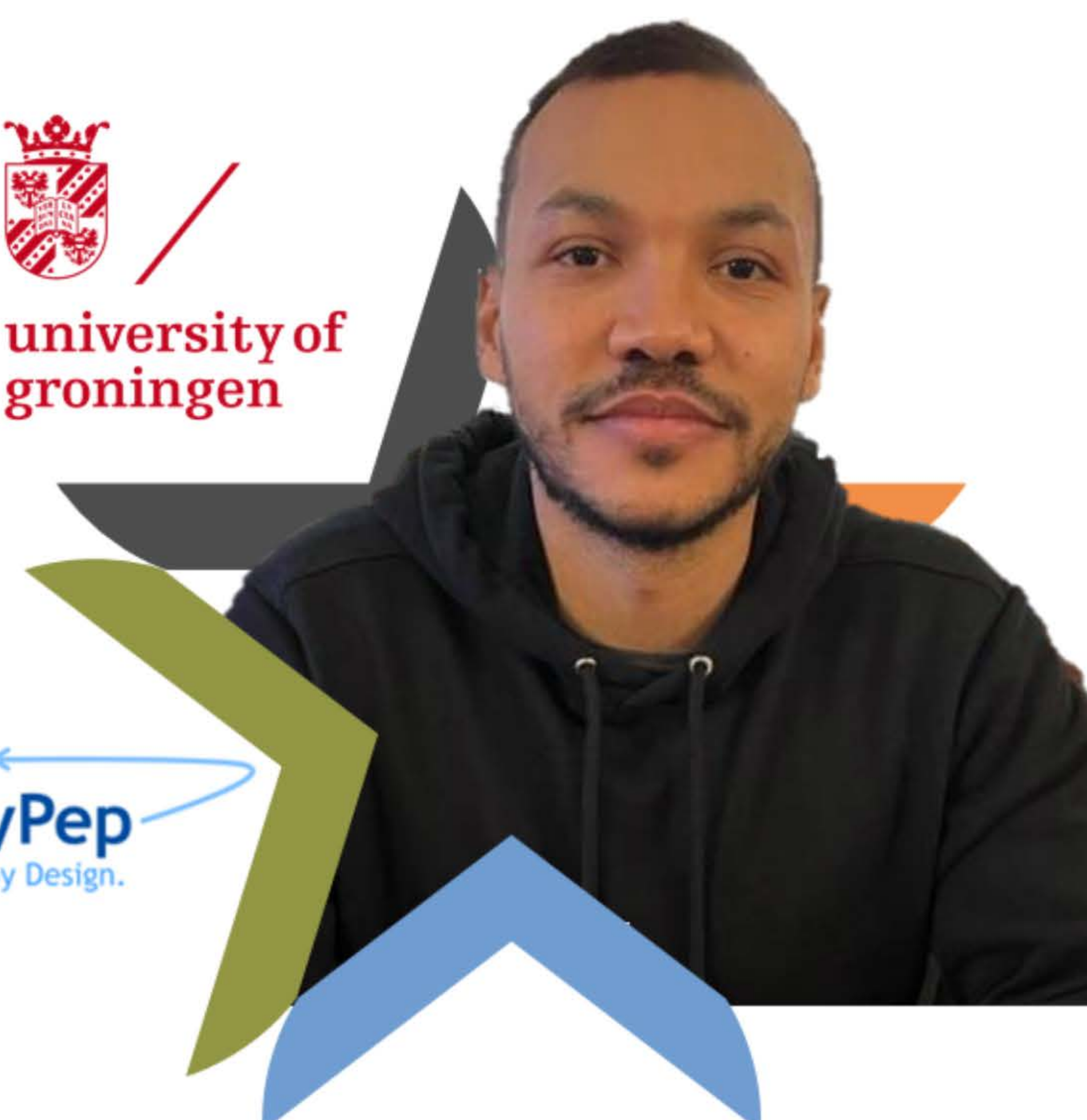
EnzyPep B.V. is a Dutch-based company focused on researching **new routes** for the production of **polypeptides** and conjugates for **pharmaceutical** applications. The company's portfolio includes **traditional peptide chemistry** and **novel biocatalysis** for the development of such molecules. Dr. **Anna Toplak** is the **lead biochemist** at EnzyPep B.V. and in charge of the industrial supervision of the project.



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What are you most excited about your project?

The application of **cutting edge** computational methods to solve current global problems and help aid in the **scientific progress** of society.

What do you find the most challenging in your project?

At present it is, learning how to implement non-typical molecules into my software. It requires **knowledge of Quantum Mechanics** which I do not yet have.

What brought you to the Bioeconomy?

My interest in enzymes and their various applications.

What does the Bioeconomy mean for you?

It is the **transformation of the global economy** from being based primarily on fossil fuels to **an alternative which is sustainable in nature** while still being just as good if not better in economic benefit for society. Essentially, it means **economic development will no longer have to come at the cost of the environment** and will use our natural resources in a circular manner.

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What did little Darren want to be when he'd grow up?

A Hip-Hop artist.



Something you love? And something you hate?

I really love Hip-Hop and I hate American beer.

Any hobbies outside of Science?

Self-improvement activities, reading, and fitness.



Short CV

- 2014-2017** ★ B. Sc. in Biotechnology, University of the Western Cape, **South Africa**
- 2017-2018** ★ Honors Degree in Biotechnology, University of the Western Cape, **South Africa**
- 2018-2021** ★ M. Sc. in Bioinformatics, University of the Western Cape, **South Africa**

