

Project:

Single Catalyst Particle Diagnostics:
Droplet Microreactor platform

“Together with Anne-Eva Nieuwelink and Miguel Solsona, I am in the single particle diagnostics platform. We are developing a droplet microreactor to do high-throughput activity screening of catalytic particles.”

Jeroen Vollenbroek (UT)



Can you do a short presentation about you?

I am Jeroen Vollenbroek and I am a PhD student at the Bios Lab-On-A-Chip group at the University of Twente. I am Dutch and I am 26 years old. I enjoy reading a lot and I never know what to tell about myself if people ask questions.

How is living in another city like Enschede?

I grew up in a small village near Deventer, so I think Enschede is a nice next step. I'm not a huge fan of big crowded cities with lots of stuff to do, so in that sense it is perfect. It feels like a slightly bigger village.

Would you advise a friend to come to the Netherlands?

Maybe. Overall it's quite a nice country, although people frequently complain about the weather and the food, and maybe the people living here. But I think it's easy living here. There is nothing to really worry about and the healthcare and social system are ok. But, if you like some more excitement then I would advise people to go somewhere else.

How/why did you finish in Enschede?

I knew I wanted to study something technical, but I didn't want to go to Delft, so for me Eindhoven and Enschede were the best options. I had a 'meeloopdag' for the study Electrical Engineering here in Enschede during my final year of high school and I liked what I saw. So I started studying here. I never went to Eindhoven in the end. I'm probably the kind of person who buys a new pair of pants in the first shop he enters, if he sees something he likes.

How did you become interested in science?

I think as a kid, I had a lot of curiosity and I was a bit of a dreamer. I think science just suits my personality. I can satisfy my curiosity greatly in science and I thoroughly enjoy it. I'm not sure if I became interested in science or whether there never was any other logical option.

Did you know right away that you wanted to be a research scientist?

To be honest, I never really knew what a PhD really was until I started one. During the first year of my study, I heard people throwing all those fancy terms around and it appeared that the guy helping me with the practical course was a so-called PhD student. I thought: 'ok, good for you', without really understanding what it meant. Also, I wasn't really sure whether I was suited for a PhD because I was neither the most outstanding, nor the most active student. It wasn't that I didn't like it, but it took me some time to make sense of it all.

During my bachelor, I didn't see studying as something you do for yourself, to prepare yourself for a job and the future. For me, it was mostly a continuation of high school, where you pass courses and advance towards the next year. Not because you want to, but because it is sort of expected of you. I don't know *who* was expecting this, but it just felt like that. What do you do

after high-school? Well you go and study of course! Why? I don't know, everybody does it and it's the obvious thing to do.

I think it was at the end of my bachelor when I first had to choose a bachelor assignment and afterwards a master (where only two courses were mandatory) that I changed a lot in that sense. I put a lot more effort into choosing my courses and I also chose a few that I knew would be a challenge, because it was completely not my background, but it was something I wanted to learn more about. For example, I followed a course in Applied Cell Biology. I enjoyed learning new things again and I was a lot more motivated to study and to take more initiative.

The biggest compliment I got for that change was when during my master thesis, my supervisor (Mathieu Odijk) asked whether I would like to continue as a PhD after graduation. I still had to do my internship at that point and I wanted to experience doing work in a company as well, so after two months in my internship (which I also liked a lot) I decided that I wanted to do a PhD.

What do you enjoy the most about your research?

I like doing things that are outside my background, which really suits this project. I think it makes your brain more versatile to come up with solutions, because different fields have different views on certain things. I also like the freedom and vote of confidence that you get in doing your research. Another thing I really like is the contrast in approach between high-tech and DIY tinkering in my project. For instance the chip that I use was fabricated in one of the most high-tech places that I know. On the other side, I also use some magnets and an electromotor I found in the lab; that has almost become as important in my setup as the high-tech chip.

What is your biggest motivation?

At this point in time I don't really need to be motivated. I enjoy the things I do. If I do need to motivate myself, then I need to think of things in a way that it becomes a personal challenge.

How do you see yourself fitting in the MCEC project?

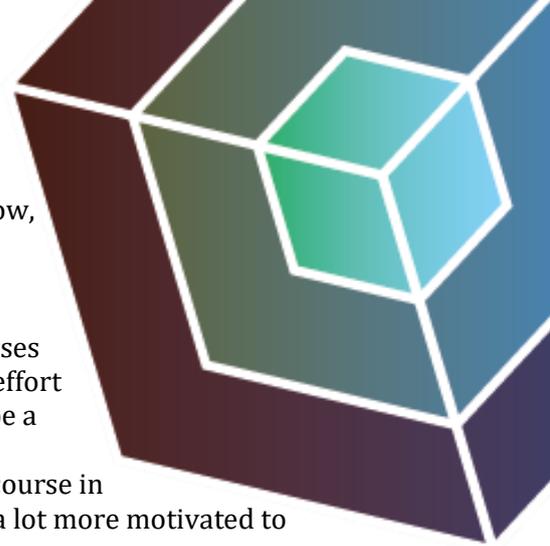
Well, as I said before, I like to learn new things. I like to own a problem and come up with solutions. I think that turned out to be quite good traits for MCEC.

If you had a time machine and 2 beers, with which scientist would you like to meet?

I would not go to a specific scientist. I would like to see the moments when a great idea was born or when people thought they just invented something great, but there was a small mistake in their thinking.

For example, I imagine the invention of the cross guard of a sword being due to a practice sword fight gone wrong. Two fighters are about to have a test fight. In their hand they hold a metal stick with both sharp edges and a sharp point. The theory is that it is a lot stronger and more versatile than a wooden stick with a piece of sharpened rock on it. The inventor stands at the side, frantically taking notes.

The fighters uncomfortably hold their metal stick, questioningly looking at the guy making notes. He looks up with a twinkle in his eyes and says: "Well?! Swing it! See what it does!" The fighters look at each other and shrug, swinging their pieces of sharpened metal at each other. The two swords lock in midair; they slide along each other and there is no stopping it. Down and down it goes and then it bites into the wrist of the guy holding it, cutting deep into the bone. "Perfect!", the inventor shouts, excitedly scribbling down notes. "All we need is something to protect your wrist and it'll make a great weapon."



Which is the most memorable "Eureka" moment in your life (not necessarily connected to science)?

It used to be at tests when after ten minutes of making math questions you finally see the solution. I think my exams about Laplace transformations (Linear Systems) and the correlation function between signals (Random signals and Noise) had the most Eureka moments.

Which scientific term/phenomena you think is the most misused by media?

When "they" use the unit to describe a quantity. During my studies there was a death penalty on using the Dutch word 'voltage' instead of 'spanning'. To compare it, it is like asking someone about their kilogrammage instead of their weight.

The best example is during the Tour de France. Everyone uses the term wattage when they mean power. For some reason that really annoys me and I always write an email to the NOS (Dutch broadcasting association) about it. One time they mentioned that they had complaints about the word wattage and then it changed to power for a while. But every summer, it turns back to wattage again.

What do you like to do in your spare time?

I like to read a lot. Steven Erikson is my favorite writer. He is Canadian, but actually quite good.

Is science the answer to everything?

No, I don't think so. I think self-acceptance and self-reflection are. As long as you are at ease with yourself and can laugh about your own stupidity, you can find answers anywhere.

What do you want to do after finishing your PhD?

I don't know yet. I am thinking about a Postdoc somewhere, because I really like doing research. On the other hand, the company where I did my internship offered me a job right before I decided to do a PhD. I really liked it there, so maybe I'll check in with them to see if they still need people by the time I'm finishing here.

