News

Dr Giovanni Biglino - An interdisciplinary approach to cardiovascular research

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Introduction

Dr Giovanni Biglino is a biomedical engineer with a specialisation in the field of cardiovascular research. He utilises an interdisciplinary and collaborative approach to his research and combines his knowledge of 3D modelling and passion for the arts to explore innovative concepts. Dr Biglino studied his biomedical engineering degree at Imperial College London before obtaining his PhD in cardiovascular mechanics at Brunel Institute for Bioengineering.

What research projects have you been working on recently?

I would say there are three areas to my research that I am focusing on. The first is 3D modelling work; specifically what interests me is the use of 3D technologies for communication purposes, for example, between doctor and patient. The second is broadly image analysis but especially deriving biomarkers of cardiac function from imaging data. I've been looking into this specifically using wave intensity analysis; this was an analysis introduced by one of my professors at Imperial, which I began learning during my PhD. The third area is more interdisciplinary work, collaborating with artists, musicians and scholars from other disciplines, with a strong component of patient involvement and public engagement. I've been doing a lot of work on that in the last six years; it's an area that I feel I can bring something original to. It involves more cross-sector work on the use of models to express and listen to patients' stories.

Did you have any great influences or mentors to get into research?

Yes, definitely, I think mentoring is such a key concept.

> *I think I've had influences from very early on because I come from a very academic family. So, for me, it was very natural to be exposed to a certain way of thinking or a certain way of dissecting a problem.*

Throughout my career, there have been a few key people who have been instrumental at different stages. One person was my Head of Department at Imperial. I was coming from a very different academic background to other students in the field, and I was probably not qualified to be on the course that I was on, but years later he said to me "I wanted to give you that chance". I realised how big of a role he played in my career without me even knowing it at the time by opening that door to opportunity for me.

I also learnt a lot from my mentor during my fellowship, being exposed to his way of thinking. There was a clarity, a simplicity to it that I always found inspiring. So, I suppose it wasn't mentoring, it was more role modelling, as I admired his way of working and leadership

style. The role of a mentor is something I've come to appreciate more recently. My mentor through the mentoring program at the Academy of Medical Sciences showed me that mentoring is not just about giving advice but more about providing direction and looking at the bigger picture. I have learnt so much just by listening to her.

What do you feel are your greatest research accomplishments?

When you think about this, what's interesting is that it depends on how you define accomplishment. Because selfishly, there are pieces of work that I feel are accomplishments because of how I worked on them. But, if you think of accomplishments in terms of impact, in this context patient impact, there's one project which comes to mind: it was a piece of work that culminated in a national exhibition called "The Heart of the Matter". It was a project about technology and art representing stories of patients with heart disease, and it was presented in different venues across the country.

I say this was an accomplishment not just because of the size of the project but because feedback revealed that visitors (including patients) had been inspired by the piece, whether taking new initiatives in their lives or seeing their children's journey in a different way.

What qualities do you think make a good researcher?

I do think there are some common qualities amongst good researchers:

- The first is open-mindedness—always go in with an open mind.

> *• Curiosity also undoubtedly, as it doesn't matter what field you are in, curiosity is often what drives trying a different approach, experimenting with a new technique, reading somebody's work, whatever it is. I think curiosity is integral.*

- Something else is probably patience, which is something that I don't have! It was very counterintuitive for me to choose research as a profession because I'm so impatient by nature. Patience is something I've had to learn because research is not something where you have a quick reward. It can take a couple of years to polish a paper and get it accepted, being rigorous takes patience, good quality research takes time, but in the end the outcome is better because of that.

Any advice for students who would like to get into research?

I have often observed that good researchers that I've met have created their own niche, whatever that may be—whether it's a method, specialising in a topic, tackling a problem in a new way, sometimes it's about leveraging things that are specific to you. Whereas we sometimes counterintuitively privilege other things in research because we think that's what we should be doing, which is not always be a good thing. Of course, in some things there are rules that need to be followed, but as you progress it's about realising "what is it that I bring?".

> *What you bring creates your niche. If you pay attention to your niche, you may get more out of it and contribute more to research.*

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