Meet the Researcher: Dr Wicak Ananduta

Dr Wicak Ananduta is a post-doctoral researcher at the Delft Center for Systems and Control (DCSC) at TU Delft in the Netherlands. He holds a Bachelor's in electrical engineering from the University of Indonesia in Jakarta and obtained a Master's degree in systems control from Delft University of Technology in the Netherlands. He holds a PhD in automatic control, robotics, and vision from Universitat Politècnica de Catalunya (UPC) in Barcelona, Spain.

Dr Wicak Ananduta, please tell us a little about yourself. Where are you from, and what is your research background?

I am Indonesian, I was born in Bali and grew up in Jakarta. I obtained a bachelor's degree in electrical engineering from University of Indonesia in 2011. After working in a state-owned gas company for 2.5 years, I pursued a master's degree in systems and control at Delft University of Technology (TU Delft). Having obtained the degree since August 2016, I then started my PhD study in December 2016 as a Marie Curie fellow at Universitat Politecnica de Catalunya (UPC) in Barcelona. My PhD project was partitioning and non-centralized optimization based control approaches for large-scale energy systems. This topic encompasses my research interests in distributed optimization, distributed control, control of large-scale systems, and their applications on energy systems.

You have recently completed your PhD as a Fellow on the MSCA funded Innovative Training Network incite. Can you say a few words about this training network?

My ITN network was called INCITE (Innovative controls for renewable source integration into smart energy systems). The aim of this network is to investigate methods and solutions to manage and control the rapidly changing electrical networks due to the introduction of renewable energy sources, distributed generators, and smart meters. There were 14 individual research projects (IRPs), each of them was carried out by an early stage researcher (ESR). The beneficiaries in this network are UPC, TU Delft, University of

Grenoble, University of Bologna, IREC (a Catalan research institute), and two companies (VITO (Belgium) and EFACEC (Portugal)).

As a PhD student in a MSCA-ITN you conducted doctoral research in different EU countries. Can you share with us about your own PhD journey?

At UPC, the first year was intended to formulate my research proposal and plan, which I defended at the end of the first year. The research proposal consists of the tasks that I had performed and had to carry out in the next two years. During that period, I also took some external courses related to my research topics, i.e., distributed and decentralized control, game theory, and distributed computation. Then, I focused working on my research in the second and third years. During this period, I also presented my research progress at top conferences in the area of systems and control, which are CDC (conference on decisions and control) 2018 in Miami, American control conferences (ACC) 2018 in Milwaukee and 2019 in Philadelphia, European control conference (ECC) 2019 in Naples. Publishing the results that I obtained in control journals was also a part of the tasks and at the end of the PhD, I submitted six articles, three of which were already published, and three others were under review. Under an MSCA-ITN, I was also supposed to perform two research visits at two partners within the network. However, my professor and I had to change this plan due to various reasons. Therefore, I visited Tokyo Institute of Technology in Japan and Arizona State University in the US, for three months each. These visits were quite fruitful as I could learn, discuss, and collaborate with leading experts in their fields from these two universities and these resulted in some publications. Aside from academic, these visits also allowed me to experience living in Japan and the US. Therefore, they enriched and broadened my view about life in general as well.

What prompted you to pursue your PhD as part of a European ITN?

When applying for the position, I did not think too much about the fact that the project is a European ITN. I applied because the research topic was in line with my interest. Only after joining, I learned about the European ITN and what it means.

How would you explain the advantages of doing a PhD as part of a European MSCA-ITN to our research community here in ASEAN?

In my view, particularly in my research field, doing a PhD in Europe itself offers the exposure to cutting-edge research problems and leading researchers. Moreover, doing a PhD under a MSCA-ITN has many advantages. To name a few: - Periodical workshops and summer schools within the network throughout the duration of the

project. During the workshops, the ESRs share their progress and they could discuss or even start a research collaboration. - Budget to attend conferences and external courses. - Two research visits, at least to the partners in the network, or as in my case, it is also possible to visit research institutes outside of the network. The main obstacle of performing this kind of visits is the availability of funding. As MSCA-ITN supports such activities, we, as researchers, do not have to think about this issue and can focus on doing research.

Can you tell us a little about the application process?

I saw the vacancies of the ITN in January 2016. I submitted my application, which consisted of an application form, my CV, and a statement of research interest for each IRP that I applied to, in February 2016. I applied to four IRPs that time as I could do so. In around March-April, I had a Skype interview with my professor and the coordinator of the INCITE network for two potential IRPs. Finally, in May I was selected. All in all, the process was straightforward and quick.

Do you have any tips you would like to share with prospective applicants here in ASEAN that may consider applying to an opening on a MSCA-ITN?

As research projects in a MSCA-ITN have been defined, knowing which projects are most suitable for you is important. I took into account my past research experience and research interests when choosing the IRPs to which I applied. I believe that I was selected mainly due to the suitability of my educational and research background. Additionally, since a PhD supervisor will play the most important role throughout your PhD career, I highly recommend to get to know your future supervisor. For instance, by directly contacting her/him via email as well as during the interview process.

As a researcher, which goals and ambitions do you have for your future career?

My main goal as a researcher is being able to contribute continuously toward the development of my research areas, i.e., distributed optimization, multi-agent systems, and optimization-based control. In the near future and as the next step of pursuing a career in the academia, I will be taking a postdoctoral researcher position at the Delft Center for Systems and Control, TU Delft.