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"It was a difficult choice between the classical beauty of mathematics and a futuristic perspective of computers and communication"

Interview with Darek Kowalski, Visiting Researcher, Institute IMDEA Networks

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Darek Kowalski
Visiting Researcher
Institute IMDEA Networks

1. To begin this interview, we are curious about how you were called to the life of science. When and why did you decide to become a scientist?

This is not an easy question to answer. I had always been curious of how the world is built and how things work, but a particular decision of becoming a scientist came late, probably during the fourth year of my study of mathematics. At that point I realized I could not only enjoy solving mathematical puzzles, but also contribute to the common knowledge by challenging open problems. Another revelation came one year after when I decided to start my PhD in Computer Science. It was a difficult choice between the classical beauty of mathematics and a futuristic perspective of computers and communication, but after a few months of struggle the “modern” part of my nature took over.

2. What training and background do you have as a researcher?

Although my first love of pure mathematics has never truly ended, for the last 15 years I have been developing my skills mostly in the area of algorithms and combinatorial analysis. During my PhD studies I focused on distributed collaboration protocols and fault-tolerance. Later on, during my postdoctoral visits, my research expertise was extended to wireless communication algorithms and their rigorous analysis. Since then I also worked, mostly in collaboration with other researchers, on many other topics related to algorithms and discreet mathematics, such as approximation and online algorithms, quantum protocols, graph algorithms, combinatorial

3. How did you get the opportunity to come and work in Madrid? What institutions have you been connected to so far?

I heard about IMDEA Networks a few years ago, and since then I have observed how the institute grows. About a year ago I decided to apply for a Visiting Researcher position, and my application was successful. I am affiliated with the University of Liverpool, UK, where I hold a reader position in the Department of Computer Science. Prior to moving to Liverpool, I was a postdoctoral researcher at the Max-Planck Institute for Computer Science (Germany), at the University of Connecticut (USA) and at the University of Quebec (Canada).

4. What interested you most about the IMDEA project? What made you want to become involved?

What is exceptional about the IMDEA institutes, and in particular about IMDEA Networks, is their environment, where a number of researchers from the different institutes, other Madrid universities and from abroad, with different backgrounds and experience, interact successfully in order to make progress on some frontier problems. The amount of researchers, collaborators, visitors and projects creates a critical mass, which is necessary for innovation and the discovery of new, original ideas. From my personal perspective, it is an excellent place to participate in challenging projects, gather new experience in different sub-areas of network communication, and contribute to the currently run projects.

5. In what research lines will you be working? What specific results do you expect to see?

My main working topics at IMDEA Networks are wireless communication, reliability and energy efficiency; however, I am very interested in collaborating on other pioneering work that could benefit from my background and experience. In particular, my plans include improving protocols for resolving conflicts in accessing common communication channels or other joined resources, as well as incorporating efficient energy-saving mechanisms into existing and new network protocols.

6. Did you know Spain before joining IMDEA? What do you like best about Madrid?

Prior to joining IMDEA Networks I visited Spain twice, each time for a short period. Therefore, my knowledge of Spain was limited to what I had read from books, newspapers and what I had heard from my Spanish colleagues. It occurred however that this theoretical knowledge I gathered before is very close to what I have found here; this includes sunny and dry climate, tasty Spanish cuisine, rich culture and specific social life and customs. It is a big change for me after spending the last ten years in traditional Anglo-Saxon countries, and I really enjoy it.

To be honest, I have not had enough time to get familiar with Madrid yet. I have a long list of places to visit, taken from the internet and my colleagues, but so far I succeeded to see only Parque de Retiro, part of Madrid around Puerta del Sol, and the zoo. All these places are really great, offering a lot of attractions for visitors. What I will have to get used to, after ten peaceful years, is the number of people around, especially in popular public places, and the noise. I am looking forward to further exploration of Madrid and other interesting places in Spain.

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About us

IMDEA Networks Institute, promoted by the Regional Government of Madrid, is a research organization on computer and communication networks whose multinational team is engaged in cutting-edge fundamental science and technology. As a growing, English speaking institute located in Madrid, Spain, IMDEA Networks offers a unique opportunity for pioneering scientists to develop their ideas. IMDEA Networks has established itself internationally at the forefront in the **development of future network principles and technologies**. Our team of highly-reputed researchers is designing and creating today the networks of tomorrow.

Some keywords that define us: 5G, Big Data, blockchains and distributed ledgers, cloud computing, content delivery networks, data analytics, energy-efficient networks, fog and edge computing, indoor positioning, Internet of Things (IoT), machine learning, millimeter-wave communication, mobile computing, network economics, network measurements, network security, networked systems, network protocols and algorithms, network virtualization (software defined networks – SDN and network function virtualization – NFV), privacy, social networks, underwater networks, vehicular networks, wireless networks and more…

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