



Entrevista com Daniel M. Dias

Conheça mais sobre a unidade da IBM Research no Brasil

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Esta edição da coluna Perfil entrevista Daniel M. Dias, Diretor da IBM Research Brazil. A unidade brasileira da IBM Research foi estabelecida em junho de 2010, sendo o nono laboratório global da IBM Research, o primeiro da América do Sul e o primeiro novo laboratório da IBM Research em doze anos. A unidade brasileira da IBM Research está baseada nas cidades de São Paulo e Rio de Janeiro.

How would you describe your professional trajectory and involvement with IBM until getting to the position of Director of the IBM Research Brazil?

When I graduated many decades back, IBM Research was, and still is, the dream place to work for Ph.Ds in Computer Science, Electrical Engineering, Mathematics, and several scientific disciplines. IBM Research was, and continues to be, renowned for many innovations, including inventing the DRAM memory, relational databases, the hard disk drive, the world's first Petaflop computer, many Nobel laureates, leadership in patents, and more recently, the Watson system, which opens up a new era of learning systems. And another great aspect of IBM Research was its global focus, with labs around the world. It was a “dream come true” when I joined IBM Research at the Watson Research Center in Yorktown Heights, New York.

I have now been with IBM, primarily at Research, for 28 years, and have enjoyed every moment. My primary technical area is in scalable and clustered commercial systems, which are multiple computer systems that work together to solve complex problems. Over the years I have contributed to many such systems including the IBMs S/390 Sysplex, one of the first clustered systems in the 1980s; I played a leadership role in IBMs SP2 parallel system, one of the first commercial parallel systems in the 1990s; I led the team that created one of the first scalable and highly available Web servers and the first Olympics Web servers, and more recently, have led the services research team in cloud computing. Over time, my role evolved to leading research teams, defining the strategy, focus areas and translating this to key research projects and impact; this includes leading the Internet Infrastructure and Computing Utilities department at the Watson Research Center in New York, the IBM India Research Lab with sites in New Delhi and Bangalore, and more recently the Service Product Technologies department at Watson Research. When there was the possibility to lead our new Research Lab in Brasil, I jumped this opportunity, and it has been a great experience.

How has been the process of selecting Brazil as the location for the newest IBM Research Lab?

IBM Research has always had a global view, and we have labs around the world. Before inaugurating our lab in Brazil, our lab in India was our eighth lab opened in 1998. So we look very carefully at many factors when we create a new lab, and we examined many locations around the world. Brazil stands out for many reasons. For research, the most important factor is having highly talented, trained, and dedicated people. So a key factor for us is the academic environment and the number and quality of Ph.Ds that graduate in each country. We concluded that Brazil's top academic institutions are becoming world-class and graduating high quality Ph.Ds. We now have first-hand experience, as we have hired world-class Brazilian Ph.Ds both graduating in the country and returning to Brazil with Ph.Ds from around the world. Another important factor is the business environment, and opportunities for industrial research collaborations in important technical areas. And as we examined the areas of focus for our new lab, we determined that there were opportunities for strong academic and industrial collaboration. This is important for our innovation strategy, where our model is that “the world is our lab”, and we will talk more about this later.

What are the main research areas IBM Research Brazil is focusing on?

When we start a new research lab, we select some areas of focus where the lab will have world-wide leadership. Brazil is endowed with a bounty of natural resources, in addition to talented people. Consequently, one area of focus for our lab is in technologies for smarter natural resource discovery, exploration and logistics, and addressing the sustainability and safety of the resource industry; this is an area we lead world-wide, in collaboration with researchers across our global labs. A second area of focus is on technologies for smarter cities, particularly focused on large scale events; this is motivated by the highly urbanized Brazilian cities and both natural and man-made events, as outlined later. A third area is on smarter devices for building a smarter planet; this is related to the devices for the prior two areas, in a highly instrumented and interconnected world. Finally, our fourth area of focus is on service systems, motivated by the very large computer services operations that IBM has in Brazil, and the emerging area of service science. The underlying technology focus areas are in analytics and optimization, high performance computing, computational science, distributed systems, cloud computing, mobile technologies, semiconductor packaging, and service science.

In contrast to the traditional Brazilian industrial culture, it is part of the industrial culture in North America and Western Europe to employ professionals with Master or Ph.D. degrees. Do you think the arrival of an IBM Research Lab in Brazil is a step towards changing the Brazilian industrial culture to involve more R&D activities?

IBM is focused on high value products and services, and this requires continuous innovation. IBM Research is the innovation engine that creates new technologies that lead to unique, differentiated and market leading products and services. And this, in turn, requires highly trained, skilled and driven researchers, usually with Ph.D. degrees, supported by Masters degree holders. So it is this business model, beyond the industrial culture, that requires professionals with advanced degrees. I agree that the arrival of IBM Research – Brazil is a step in this direction, and we are actively hiring researchers with advanced degrees. And I believe that, as Brazil moves up the value chain, it will become increasingly important and likely that Brazilian industry will grow its focus on Research and will employ a larger number of Ph.Ds.

It has been recently announced that IBM set a new U.S. patent record in a single year with 6,180 U.S. patents in 2011, marking the 19th consecutive year that the company has led the annual list of patent recipients. How would you describe the daily work at IBM Research with such a focus on innovation?

It is a privilege to work for a company that has innovation at its core, and highly values patents and scientific contributions and impact. And IBM is very successful in translating these innovations into differentiation for our products and services, and for business and customer impact. A key aspect is our definition of innovation that is based on the National Innovation Initiative, led by our former CEO, Sam Palmisano. This definition is that “Innovation resides at the intersection of invention and insight, leading to business and societal impact”. We call this “innovation that matters”. The important point here is that a key part of innovation is on having the insight on the problems that matter, and then coming up with inventions that solve these critical problems. So a key part of how we work, is to develop the insight by working on real and difficult problems with our customers and partners. For example, one of our projects is with the Rio de Janeiro Center of Operations. The genesis of this project was the major flood that occurred in Rio de Janeiro in April 2010. This event uncovered significant gaps in the city’s preparedness to respond to major emergencies or crises. In order to address this problem the city and IBM organized what we call an “innovation discovery workshop”. One of the outcomes of this workshop was the decision to build the city’s Center of Operations, to which our lab has contributed, particularly in building fine-grained weather prediction and flooding models. So, to summarize how we work, for IBM Research, “the world is our lab”, where we gain insight into the key real-world problems, from which the inventions are created, leading to innovations that matter to business and society.

Are there opportunities for internships in IBM Research - Brazil for undergraduate and graduate students in Computer Science?

Building strong relationships with key Universities in Brazil is very important to our lab. One of the best ways to build these strong ties is through student internships. We already have several interns working at our lab, both at the undergraduate and graduate level. And our plan is to grow the number of internships, with students working closely with our researchers and university faculty on leading edge projects.

What are the opportunities and mechanisms to establish cooperative projects between Brazilian academia and IBM Research - Brazil?

We work very hard to establish strong research collaborations with top academic and industrial partners, since it is in our mutual interest. One mechanism we have is through IBM faculty awards; another program we have is for IBM Ph.D. fellowships. Last year we had our first awards in Brazil for an IBM faculty award and Ph.D. fellowships. These are global programs, and nominations are very competitive with world-wide nominees. A third program is for Shared University Research (SUR) grants, for joint work with top universities. And a fourth mechanism is for Open Collaborative Research (OCR) projects on key problems with academia. These are also very competitive nomination processes, with proposals from around the world. We are working to create SUR grants and OCR projects with key institutions in Brazil. In addition to these programs, we have some of our staff working on their Ph.Ds, some of our researchers teach courses at universities, and others are on Ph.D. committees; these ties also help build strong relationships between our lab and Brazilian academia.

We strongly believe that innovation in the 21st century needs to be open, collaborative, multi-disciplinary and global. And we will continue to build, nurture and grow strong ties with Brazilian academia and industry, to generate impact in Brazil, in the region, and globally.

MiniBio

Dr. Daniel M. Dias was named director of IBM Research – Brazil in August 2010. He is responsible for leading the IBM Research Lab in Brazil, with sites in Sao Paulo and Rio de Janeiro, with strategic focus areas in smarter human systems focused on large scale events, smarter natural resources discovery and logistics, smarter devices, and service systems. Prior to this, Dan was director of Service Product Technologies, at the IBM T.J. Watson Research Center, Hawthorne, New York, with responsibility for leading world-wide research in technologies for advanced service products, including cloud computing, service management, transformation to and management of virtualized environments, mobile computing and management, and SOA technologies. Prior to this, Dan was director of the IBM India Research Lab, where he was responsible for leading the research units in India, at Delhi and Bangalore. Dan previously led the internet infrastructure and computing utilities department at the IBM Thomas J. Watson Research Center, where he and his team built one of the first scalable and highly available Web servers. Earlier in his career, he led the distributed systems and middleware department, and the parallel commercial systems group, both at IBM's Thomas J Watson Research Center. He has received several awards for his contributions to research, including IBM Outstanding Innovation and Outstanding Technical Achievement Awards and conference best paper awards. He has co-authored more than 90 refereed papers in journals and at international conferences, and holds more than 45 U.S. patents. Dr. Dias received the M.S. and Ph.D. degrees from Rice University, Houston, Texas, USA, both in Electrical Engineering. He is an IBM Distinguished Engineer, a member of the IBM Academy of Technology, and a Fellow of the Institute for Electrical and Electronics Engineers.