

Xilinx-NUS Industrial Postgraduate Programme

Objective:

Xilinx has launched the “Industrial Postgraduate Programme” in Singapore, supported by the Economic Development Board (EDB), to provide opportunities to outstanding undergraduate and masters graduates with Computer Science or Electrical Engineering backgrounds to pursue their Ph.D. degrees.

The Ph.D. candidates will study in NUS and participate in strategic research project collaborations between Xilinx and NUS. Xilinx will provide equipment, business scenarios, research projects, and cooperate with NUS to create an enriching academic environment for program participants. The successful candidates will become full-time employees of Xilinx and pursue this programme on a full-time basis. Each Ph.D. candidate will be mentored by one supervisor from NUS and one co-supervisor from Xilinx Labs Asia Pacific based in Singapore. In addition, the Ph.D. candidates will work closely with other Xilinx researchers worldwide.

About Xilinx and Xilinx Labs Asia Pacific:

Xilinx is the inventor of the FPGA, hardware programmable SoCs and the ACAP (Adaptive Compute Acceleration Platform), designed to deliver the most dynamic processor technology in the industry and enable the adaptable, intelligent and connected world of the future in a multitude of markets from the endpoint to the edge to the cloud, including Data Centre, Wireless/5G and Wired Communications, and others. Xilinx's core strengths simultaneously address major industry trends including the explosion of data, heterogeneous computing after Moore's Law, and the dawn of artificial intelligence (AI).

Xilinx Labs, part of the CTO Office at Xilinx, is concerned with innovation, differentiation, and the de-risking of technology. Goals are to: enable new users; provide a ‘more than Moore’ roadmap; seed new market opportunities; and win the mindshare of start-up and research communities. Xilinx Labs Asia Pacific is located at the Xilinx Asia-Pacific headquarters in Singapore, complementing Xilinx Labs groups at the other Xilinx headquarters, in North America and in Europe.

The technical focus of Xilinx Labs Asia Pacific is inventing heterogeneous and scaling-out systems and applications for AI, cloud computing, big data, edge computing, 5G, blockchain, etc., spanning development in the areas of both hardware and software.

Research Topic of the Programme:

The scope of the research project is broad, and encompasses systems, architecture, tools and applications on scaling out AI/cloud computing/big data/edge computing/5G/blockchain/IoT applications. The research projects will cover 1) applications in the aforementioned technical scenarios; 2) new processing models and systems in the emerging cloud-edge-end environment; and 3) heterogeneous system architectures providing disaggregated data and computing resources.

To enable rapid innovation in all the above research topics towards harnessing highly flexible and adaptive processing across a variety of technologies, Xilinx has invested to build a Xilinx Adaptive Compute Cluster (XACC) at NUS, as a platform. XACC is equipped with the latest hardware including high-end servers, Xilinx Alveo accelerator cards and high-speed networking to allow exploration of arbitrary network topologies for distributed computing, and up-to-date software technologies including Vitis, a unified software platform for software engineers, AI researchers and data scientists who want to exploit adaptive compute acceleration. The XACC will be expanded with the newest 7nm Xilinx Versal ACAP in the future. The XACC infrastructure is physically located at NUS, but acts as a hub for researchers and developers in the field to access remotely. The IPP research based on XACC will receive feedback

and recognition from both academia and industry, which makes the invented technology more promising in terms of impacting or changing our life.

Application Requirements:

1. Singapore Citizen or Singapore Permanent Resident (SPR);
2. Meet the university's admission and academic requirements;
3. Obtained bachelor's or master's degree in Computer Science/Engineering, Electrical/Electronic Engineering, Mathematics, Physics, or related areas;
4. Keen to study in the areas of AI, 5G and 5G enabled technologies, Internet of Things, Cloud Computing, Big data, Blockchain, distributed computing, Networking, Edge Computing, Reconfigurable Computing, etc.;
5. Expected to spend at least 50% of her/his time at Xilinx to work on the research projects.

Benefits:

1. Monthly salary of **5,000** SGD for 4 years;
2. Fully supported tuition fees for 4 years;
3. Central Provident Fund (CPF) Contribution (*Note: the rate is pegged to the prevailing employer's contribution rate set by CPF*);
4. Research related expenses, including equipment, conference attendance, publication, etc.;
5. Other benefits, such as medical insurance coverage, outpatient expenses & dental treatment, paid annual leave, etc.

How to apply:

Applications are accepted year round and will be considered for the next nearest intake. There are two intakes per academic year, ie., January Intake and August intake. Local applicants may submit their applications by the following deadlines:

- August Intake: 15 March
- January Intake: 1 September (of previous calendar year)

Please check detailed information on IPP with NUS at

<https://www.comp.nus.edu.sg/programmes/pg/phdcs/industrial/>

And submit your application at Admissions portal at

<https://www.comp.nus.edu.sg/programmes/pg/phdcs/application/>

After making an application, please email chengchen.hu@xilinx.com your application information (name, application ref. number, citizenship, applied university) and your CV, keeping the subject line with the format of "Xilinx_IPP + NUS + name". In your CV, please indicate your citizenship (Singapore citizen or SPR), education experience with CGPA, skills, technology related experience, etc.

Query:

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