

Dt: 13 March 2017

Dear Sir/Madam,

To introduce myself, I, Paul George am a Junior(3rd) year undergraduate Electronics and Communications Engineering major studying at the Shiv Nadar University (Dadri, India). I write to you seeking a summer research internship, with or without stipend for a period of three months (starting May 15th 2017) and/or a five month semester long internship (starting January 1st 2018) at any of your global research centres.

I have from a young age been fascinated by computers and have grown up playing with them and, taking them apart to understand how they work. It was this passion to understand computers that led me to major in Electronics and Communication Engineering with additional electives from the disciplines of Computer Science and Mathematics. Studying in a university that encourages multidisciplinary research has given me opportunities to interact with researchers using high performance computing environments to run highly complex computations in the fields of Fluid dynamics, Molecular structural mapping, Deep learning and Real Time DSP, exposing me to a wide range of problems that could be tackled better and more optimally using heterogeneous compute environments.

In one of my projects I lead a team of five students in developing an 8 - bit pipelined processor. In this project we have implemented our CPU in RTL using Verilog & did our verification and testing using a Xilinx Artix 7 FPGA. We have developed an assembler and the team is presently working on developing a compiler, in addition to a few hardware improvements for the same.

With regards to my personal overtures into high performance computing, I extensively use profilers to investigate inefficiencies in code and routinely optimise the code I write for the X86-64 platform using SSE instructions, MKL routines & the judicious use of multi-threading. I have additionally implemented the Cooley Tukey FFT algorithm to leverage the parallelism achievable with NVIDIA GPU`s (PTX ISA) and am currently working on a proof of concept for a USB co-processor.

I am interested in pursuing a career in the field of computer architecture research with specific focus on technologies catering to high performance computing. Tracking developments in the domain, I see that players from industry and academia are increasingly using heterogeneous compute environments to accelerate their high performance computing applications by using technologies such as GPU`s and FPGA`s. Additionally there is a renewed interest in reconfigurable compute environments (earlier limited by FPGA technology) with organizations like Intel and Xilinx developing products to cater to a market that is driving them, rather than responding to their push.

I plan to pursue a master's degree in EECS and at this stage would really appreciate an opportunity to work with and learn from people working on related technologies.

Looking forward to hearing from you.

Thank You :)

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