

Dear Hiring Manager,

I am writing to express my interest in a computer architecture-related role at Ahead Computing. As an aspiring researcher and engineer specializing in architectural simulation and high-performance computing, I am eager to contribute my expertise to your team. Given my current visa constraints, I am seeking a remote opportunity where I can effectively collaborate and make an impact.

I am currently an intern at the Mars Lab, IIT Guwahati, where I focus on performance improvement of multicore processors using wireless on-chip interconnects. My contributions include designing and implementing a wireless on-chip communication model in gem5, integrating MAC protocols such as FDMA and TDMA, and developing a dynamic token-passing mechanism to optimize token cycle allocation. Additionally, I have designed and integrated AES and Prince cipher RTL blocks with the Garnet network interface to ensure secure and efficient packet transmission. Developing this gave me a strong perspective on Network-on-Chip (NoC) architectures and extensive experience in modeling accurately. Furthermore, I have a solid understanding of digital electronics, which enhances my ability to design and optimize hardware architectures.

Beyond my internship, I have undertaken projects that reinforce my expertise in computer architecture. I developed an L1 Cache Simulator in C++ with support for direct-mapped, fully associative, and set-associative configurations while implementing LRU and PLRU replacement policies. My work also includes bursty traffic simulation in an 8x8 NoC and enhancements in the Garnet network, such as buffer monitoring and acknowledgment packet generation.

My skill set includes proficiency in C, C++, Verilog, and Python, along with experience using gem5, Vivado, MATLAB, and Linux. Additionally, I have successfully completed an NPTEL certification in Multi-Core Computer Architecture. My deep interest in high-performance computing and network-on-chip optimizations aligns with Ahead Computing's mission to push the boundaries of computing efficiency.

I have attached my resume for your review and would welcome the opportunity to discuss my qualifications further. Please feel free to reach out at your convenience to schedule a conversation.

Thank you for your time and consideration.

Best regards,

Sai Srikar Dokka.