November 28, 2016

<Department Name>
<Address>

Dear Members of the Search Committee,

I write to apply for the position of <POSITION NAME>. I am a PhD candidate in the Department of Computer Sciences at the University of Wisconsin-Madison in the Multifacet group under the guidance of Professors Mark D. Hill and David A. Wood. I will defend my thesis titled "Tightly integrated CPU-GPU Architectures and the Analytic Database Machine" in May 2017.

As a computer architect, I want to enable the continuing exponential growth in computing capability despite the slowing of Moore's Law. My PhD research takes one step towards this goal and logically unifies heterogenous systems that combine traditional multicore processors with massively parallel general-purpose graphics processors (GPUs). I wrote two of the first papers that show how to provide two important properties for CPU-GPU systems: coherent data access and a consistent address space. This tight logical integration simplifies programming this ubiquitous hardware and improves performance for important applications. Through a multidisciplinary collaboration, I applied my expertise to increase the efficiency of big-data analytics using the tightly integrated GPUs enabled by my previous research. I showed that these new tightly integrated GPUs can reduce the energy required by and increase the performance of big-data analytic queries. I have published papers at the International Symposium on Microarchitecture and the International Symposium on High Performance Computer Architecture. Additionally, my work has generated interest outside of academia; I have presented my findings at industrial labs such as AMD Research, Google, and IBM. I see many opportunities for computer architects to improve future system performance. For instance, logically unifying other specialized processors (e.g., image processors and always-on sensors) with the other components of the system can improve the performance of emerging workloads like machine learning and increase the energy efficiency of Internet-of-things devices.

I developed my teaching skills when I was the primary lecturer for a 140-student second-year undergraduate machine organization class (*like your class XXX*). This experience solidified my passion for teaching. I taught this class using an active learning and feedback-driven approach, which allowed me to engage the diverse student audience. I am excited to grow my teaching repertoire by teaching upper-level and graduate classes (such as advanced computer architecture) and to expand on my experience mentoring one-on-one.

Throughout my graduate studies, I have sought opportunities to give back to the community, both the Madison-area by teaching an after-school elementary CS program and my professional community. I am a leader in the community that develops the open-source gem5 architectural simulator, which has been used by more than 1000 scholarly works, and I will lead the "Learning gem5" tutorial at HPCA in February. I strongly believe in releasing and maintaining community infrastructure to easily reproduce and build on published ideas.

I have included my curriculum vitae, research statement, teaching statement, and a list of references. Please let me know if there is any further information I can provide. I look forward to hearing from you, and I am excited about the prospect of continuing my career at <Insert university here>.

Sincerely,

Jason Lowe-Power