My postdoctoral and PhD thesis work has focused on low-overhead multi-core and many-core scheduling techniques for use in the context of scientific computing. My long-term goal within, say, the next 10 years is to use the research I have done during my postdoctoral appointment and PhD to make an impact to the field of computer science through offering new perspectives to a particular area of computer science or to develop an exemplar technological solution to a problem. By being selected to attend the forum, I could have a unique opportunity to help me achieve my long-term goal in three key ways.

First, I could learn from experts their opinion about future trends in technology, which will help me to better anticipate and navigate the future trends that I would likely encounter through my career. For example, given current advances in quantum computing research, what is the potential impact of novel quantum computing technology to my PhD research topic, within the next 5 years? Could I make modifications to the techniques in my PhD thesis so that they could provide benefits in the context of a quantum computing technology? Knowing the answers to these types of questions would be beneficial to strengthening the thesis work I have done, and to apply my work in the future.

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Third, and perhaps most importantly, I could understand problems in society that are impacted by my dissertation research by learning from experts how problems in society can be impacted by computer science and mathematics in general. In the context of my research, could the low-overhead multi-core scheduling techniques in my thesis be used for developing energy-efficient operating systems for laptops used in developing regions of the world? The forum’s discussions would enlighten me on how to implement this in the near-term, and learning from experts how to apply my thesis work to real research problems in society would help me apply my thesis to real-world, practical problems in industry that I may encounter throughout my profession.

Overall, learning about experts’ viewpoints will allow me to formulate a well-informed and well-rounded vision that I can use for advancing myself in the next several years of my career. The forum is also relevant to my current research directions, and near-term goals. For the above reasons, I believe I could be a good candidate for the Heidelberg Laureate Forum, and hope to be accepted to be part of the Heidelberg Laureate Forum this year.

Gene Golub argued that computation and mathematics can be solved on a computer, and all problems can be mapped to matrices, which can in turn be used on a computer. Gene Golub was one of the people that shaped my advisor’s and another Professor’s research and viewpoints. Advisor is a descendant of him.

Today the core of computations is linpack which we base the throughput of supercomputers on, essentially, determining at what rate can we discovery science, to enhance understanding of our world.

Several other applications have arisen, but they can still be mapped to a mathematical problem. Gene Golub was able to find a way to define a problem and make a high-impact to many fields. MPI is the single most widely used programming interface.

My long-term goal is to make an impact like Gene Golub did, where he had a single message that shapes everything we do today in high-performance computing.

Computation in the long-term. My long-term goal is to make a high-impact and change the way we think about computation. At the moment, I don’t know where I want to go specifically. This forum helps me in support of these long-term goals for 3 reasons.

First, I can learn to define my visions, not just short-term impact about new areas. Understanding others’ perspectives helps me formulate my own. In my thesis, my goal is to solve the problem of scaling to a larger number of nodes.

The short term impact is for peta-scale and exascale. But what about long-term impact? What about an infinite number of nodes? What implications does the thesis have on Big Data? It’s unclear how I can direct the work that I am doing

In the future, and a conference like this will let me figure this out.

What are the key problems that computers and mathematics that remain unsolved? Innovators from the previous generation have had a long-term impact. Because of their continued involvement in the research community, they are well-aware of the current problems in society, and have a perspective on what can shape the next generation. What problems in society can computer science solve? Specifically to my area, how can hpc shape the next generation? Learn about what the open problems are from those who have innovated, and hear what they think are the important problems, and how to innovate in this next-generation. My area of expertise is solving a scaling problem, and that helps to enable scientific discoveries. But whatever innovation you create, how do you connect it with societal needs? Computation is very a theoretical and knowing specific cases of how an idea with high-impact has some impact on society will be beneficial in understanding how to direct future research.

Learn about the world from different perspectives. I have specialized in an area of computer science and go to conferences in my area, but what about a more general view of computer science?

3. Inspiration to make an impact. There may be struggles one has. Hearing those struggles and trying keeping those in mind when we are faced with challenges, keeps us going.

Also, how does one communicate effectively? Business schools teach communication, but in our profession, there isn’t as much knowledge. Innovators of the previous generation understood the obstacles in their generation, and were able to navigate through. Computation is a fast-paced discipline.

5. Meet others who want to change the world. I have worked as a Lawrence Scholar here as a practical researcher. I have gained a lot of practical experience. However, these all help to define your near-term goals in my field. This is a unique avenue where you can define your goals, if you want to continue to strive to make an impact.

I have worked hard throughout my PhD to learn specific skills necessary in my field. This forum would help me shape my longer-term views, goals and ideas of how to succeed in my career. I believe that coming to a forum with other people who are figuring out who they want to be provides a great opportunity for me to advance myself. I also believe that by sharing my work with others and listening to others work, I can become more knowledgeable in my field.

How do we make our dreams? The papers on work-stealing have had a high-impact in the last 30 years.

1. History in my field.

Several prior mathematicians and computer scientists made differences in computing. Gene Golub made a statement that a large class of problems can be solved through matrix computations, most notably singular value decomposition, which is widely used in machine learning and algorithms. Bill Gropp, along with a team of others, developed the message Passing Interface (referred to as MPI), which allowed for development of many numerical algorithms, scientific applications, and scientific discoveries, using a supercomputer.

My dissertation aims to solve a problem of scalability limits an important class of computations referred to as bulk-synchronous applications, at a very large-scale, i.e., 10000+ nodes. I aim to show how to scale iterative bulk-synchronous applications.

I can scale iterative bulk-synchronous parallel programs to a very large scale.

The solution proposed in my dissertation is to make modifications to the code only within the node of a supercomputer, without relaxing the constraints of synchronization. As I draw my thesis to a close, a key question I want to know is how I can make a long-term impact based on the thesis work I have tried to solve.

The conference can help me in three ways.

First, because this is a forum with a wide variety of backgrounds in computer science, and not just that of a specific field, it can help me understand the implications of my thesis in other areas of computer science. In the field of parallel computing, several parallel numerical algorithms require repeated global collective communication that cannot use asynchronous calls, due to constraints in the application. Many applications' algorithms naturally fit the bulk-synchronous programming (BSP) model. These algorithms include heat dissipation simulations, solvers with convergence checking, and Fast Fourier Transforms (FFTs). How does it help in the field of distributed computing? Specifically, how can it benefit in a cloud computing environment, where you already have a very large number of nodes, and want to do numerical calculations, requiring several bulk-synchronous steps? Another problem I add is how I can formulate this as a theoretical problem that fits within the algorithms and theory community.

Distributed Systems: MapReduce, change hadoop scheduler, Big data

* Architecture: Fast hardware synchronization on many cores.
* Algorithms: I add that in the context of mathematics and algorithms, are there other problems that my thesis falls under?

Second, it would benefit helping me develop long-term goals by having continued impact that my field ideas can have on society for years to come. Because of the laureates continued involvement in the research community, they are uniquely aware of the current problems in society, and have a perspective on what can shape the next generation. Innovators from the previous generation have had a long-term impact. What problems in society can computer science solve in 10 to 20 years from now? A current simulation is a human heartbeat, and biological simulations. What about renewable energy simulations that need high-resolution? How does my thesis work even when you consider new advances in physics, where quantum computing can change my thesis?

That can we do with our technology to supply these calculations? Can we use runtimes to solve this problem? With the increase in trading, we need faster performing algorithms. Sensor networks might need to perform fast calculations.

With globalization, and the cost of laptops and iPhones becoming cheaper, more people have access to the internet, and more people will be able to have email and facebook accounts. This will allow for a large society such as Facebook to easily use computers across the world. What are the obstacles that Facebook has?

5. The way you handle your life can make a difference in what changes you make. There is a scheduling session in every conference of the 6 conferences. Computation is a fast-paced field. It requires management of time. Conferences are the norm, rather journals. A forum like this can help teach me how to remain competitive in this field without breaking down.

My current thesis has not answered these questions. I have discussed these with my advisor, and he has varied opinions, but he says that he could be wrong.

6. Conclusion: If I get the opportunity to go, it could help me complete a void.

I have worked hard throughout my PhD to learn specific skills necessary in my field. These conferences teach make you better aware of current research in your field. The courses at the University to teach me mathematical maturity, trained me to do research, solve hard systems problems, and given me the technical skills needed to pursue research in my area. Yet, the one thing missing is that I haven’t been able to figure out what is next. My advisor has been the most influential to me. But getting other experts’ opinions will allow one to formulate a particularly well-rounded opinion and vision for where I want to go. This forum would help me shape my longer-term views, goals and ideas of how to succeed in my career. There aren’t too many forums like this, and I definitely would use the most out of it if I was able to attend.

I believe that coming to a forum with other people who are figuring out who they want to be provides a great opportunity for me to advance myself. I also believe that by sharing my work with others and listening to others work, I can become more knowledgeable in my field.

Algorithms and Mathematics.

Conferences that I must attend to advance my PhD brings together experts in one area. In contrast to these conferences,

Given experts in different areas of computer science at the forum, I can go to

MPI

I can make a long-term impact based on the thesis work I have tried to  solve.

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