Internships

My name is Akshay Singh and I am senior in Computer Engineering. I am also working with a UIUC startup known as Quicket Solutions and we have already generated some funding and got few clients as well. Our Company has also successfully got its business model patented and is e-verified as well. Our board also includes dignitaries from Zebra Technology and we use infrastructure provided by Amazon (govcloud: http://aws.amazon.com/govcloud-us/).

We are in immediate need of few students with knowledge of cloud (primarily) and distributed systems, which I think CS 498 is the correct course for that.

It is my request to please allow our team to speak with the class in the beginning or in the end of a lecture for few minutes(3-5). I think that this will definitely help us to get some bright minds we need at this point, which in future may also turn into a full time offers.

Regards

Akshay Singh
asingh38

Description
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Research and development of a new parallelization framework for building parallel applications, especially in the field of High Performance Computing (HPC), targeting multiple hardware architectures.

This research investigates novel ways to express HPC algorithms and will involve expressing/discovering parallelism using a visual framework, developing a high-level translator/compiler, and expressing important HPC algorithms using this parallel framework. Ideal for someone looking for a PhD thesis topic in this area.

Qualifications
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Must be pursuing an MS or PhD degree in Computer Science, Computer Engineering, and/or Electrical Engineering.

Required experience:
Candidate must have 6+ months of work or educational experience with the following:
- Parallel programming (OMP/MPI) and parallel algorithm development
- Strong programming skills in C/C++

Desired experience:
- Compiler construction/analysis/design/optimization
- Performance analysis of parallel code and parallel hardware
- Scripting (JavaScript/Perl/etc)
- Familiarity with LLVM or other backend

Following is a request for candidates for internships by Greg Bronevetsky at Lawrence Livermore National Lab. He listed out the areas of interest that he is looking for students. If you have any students in mind please forward it to them or for a group that works in performance area etc..

Thank you,
Mumtaz

Contact:
Greg Bronevetsky
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I'm interested in dynamic and static analysis of software and hardware behavior, with a focus on High-Performance Computing systems.

Internship project in the following areas:

**Dynamic analysis:** I'm interested in techniques to track and statistically model the performance, accuracy and physical approximations. This includes:
- Synthesis of physical formulas within simulations based on observed experimental data (e.g. we can currently synthesize molecular dynamics potential such as Lennard-Jones and Buckingham).
- Modeling the propagation of data and computation errors through application state,
- Predicting the performance of computational tasks as a function of their inputs, available hardware resources and contention for those resources from other computational tasks.
- Modeling the sensitivity of the accuracy in each simulation component's outputs to the accuracy in its inputs.

I'm interested in work on both developing new statistical models as well as applications of my existing work to improve the accuracy of applications without sacrificing efficiency or improving efficiency without sacrificing accuracy. I've developed framework to make it easy to apply such analyses to large applications, so projects in this directions should be able to look at fairly realistic use-cases.

**Static analysis:** I'm developing a dataflow analysis framework that makes it possible to transparently compose different static analyses without requiring the analyses to be aware of each other. This makes it easy to combine multiple independent analyses (e.g. points-to, array indirection and matrix algebra) into a single analysis tool. It is especially well-suited for transparently combining specialized analyses for multiple embedded DSLs with generic analyses such as points-to and constant propagation. The framework is implemented on top of the ROSE compiler and I'm looking for research on using it to analyze complex applications with DSLs.

We are looking for interns who have a keen interest in developing brain-inspired technologies to transform the way we interact with each other and the world. Cognitive systems must think, improve by learning, and discover answers and insights to complex questions from massive amounts of data.

The ideal candidate should have a passion for developing new technologies for information retrieval, knowledge discovery and management, semantic analysis, decision-making, network analysis, machine learning, visualization, human-computer interaction, deep learning, computer vision, multimedia semantic analysis, image and video databases, graph databases, and for building systems to enable integration of these technologies to provide new cognitive solutions. The interns will thrive in an interdisciplinary team, and ideally, have a record of developing novel capabilities from conception to application.

Furthermore, the intern will demonstrate the ability to work and collaborate extensively with clients, business partners, startups, and academia. They will also be expected to have tangible impact in the other essential parts of what we do -- driving our efforts in developing and deploying software and services for real users at various scales, from small teams to enterprise-wide. As a research intern, you will be expected to formalize challenging problems, develop new solutions, and work with business and development teams to ensure these solutions have a significant impact.

The intent of the LEADing to Africa internship program is to build an important recruitment channel for our business in Africa by providing a short-term real world experience in other IBM markets. IBM's internship programs provide assignments for students to become familiar with IBM's organization, work style, culture and global reach. Students in this program have expressed interest in working in Africa if such a position is offered after completion of the internship program. IBM is also committed to compliance with all fair employment practices regarding citizenship and immigration status.

**Required**
Master's Degree
English: Intermediate

**Preferred**
Doctorate Degree in Mathematics
At least 1 year experience in software programming in Java and C++
At least 1 year experience in published research in at least 1 of: AI, machine learning, semantic analysis, visualization, HCI, or systems building

**English : Fluent**

**Additional information**

The World is Our Laboratory No matter where discovery takes place, IBM researchers push the boundaries of science, technology and business to make the world work better. IBM Research is a global community of forward-thinkers working towards a common goal: progress.

IBM is committed to creating a diverse environment and is proud to be an equal opportunity employer. All qualified applicants will receive consideration for employment without regard to race, color, religion, gender, gender identity or expression, sexual orientation, national origin, genetics, disability, age, or veteran status. IBM is also committed to compliance with all fair employment practices regarding citizenship and immigration status.