

Dear Faculty Colleague:

IBM is pleased to announce the IBM Ph.D. Fellowship program for the 2015-2016 academic year. We have received many outstanding and exceptional candidates from universities all over the world in the past and encourage your participation. IBM Ph.D. Fellowship nominations may be made by doctoral faculty members from September 18 to October 28, 2014.

The IBM Ph.D. Fellowship program honors exceptional Ph.D. students in many academic disciplines and areas of study, for example: computer science and engineering (including cyber security and cloud computing), electrical and mechanical engineering, physical sciences (including chemistry, material sciences, and physics), mathematical sciences (including analytics of massive scale data with uncertainty, operations research, and optimization), public sector and business sciences (including urban policy and analytics, social technologies, learning systems and Cognitive Computing), and Service Science, Management, and Engineering (SSME). Additionally, IBM pays special attention to an array of focus areas of interest to IBM and fundamental to innovation, including but not limited to:

- **Technology that creates new business and social value**

Close interaction with clients to develop innovative solutions to solve their toughest technical challenges. Examples include data analytics for drug discovery, social media analytics for new business models in retail, design of enterprise mobile applications, etc. The IBM Customer Experience Lab at the Watson Research Center provides a unique environment for researchers to work hand in hand with clients, using the latest technology platforms to develop and deliver innovative solutions for the most demanding industry needs.

- **Cognitive Computing research**

The availability of large amounts of structured and unstructured data from business and public records, mobile devices, sensors and social media has brought the traditional artificial intelligence discipline to the era of Cognitive Computing. Individuals, professionals and businesses need help from cognitive machines to make sense of the many things that concern them on a near- real time basis. The active areas of research include natural language processing, assisted and automated machine learning, creation of knowledge representations and scalable querying techniques, multimedia analytics, contextual computing, recommendation and reasoning systems, a close collaboration between humans and machines on human terms, a rich platform and tools that support the creation and support of the cognitive applications, etc. IBM Research is closely tied to the IBM Watson Group for taking the research technology to market.

- **Cloud and distributed computing technology and solutions**

Next-generation computer hardware and software architecture:

The next generation computer hardware architecture will enable the systems and datacenters of the future, providing the foundation for our enterprise cloud computing capabilities. Some specific enablers include: accelerators, components and performance tuning technologies; storage and compute (Power, Mainframe) system technologies, composable (dis-aggregated) systems inclusive of compute migration to memory; storage and throughout the system hierarchy; next-generation networking architecture and switching technology enabling datacenter "flattening" and associated software such as system compilers, operating systems (AIX, Z/OS), general parallel file system and object store.

The next-generation software architecture will provide (a) contextual and adaptive security and compliance and enable (b) foundations for solutions providers inclusive of a very agile feedback-driven Dev/Ops cycle, business insights through a system of insight cloud platform that marries systems of engagement and systems of record data and the building blocks of the next-generation API economy; (c) hybrid cloud foundations for enterprise client workloads, where data and programs are in many places including public and private machines; and (d) container cloud capabilities. Some specific enablers for all of these include: application integration middleware; programming languages, models, runtimes and tools; software engineering methodology inclusive of experiment execution and app refinement; cloud platform/infrastructure, storage and networking services and enhanced labor centric service delivery through automation, optimization and analytics.

- **Fundamental science and technology**

New materials, devices, and processes to extend core logic and memory technology roadmaps further into the nanotechnology regime, and new computing devices and architectures beyond the conventional von Neumann architecture such as neuromorphic and quantum.

The IBM Ph.D. Fellowship program also supports our long-standing commitment to workforce diversity. IBM values diversity in the workplace and encourages nominations of women, minorities and all who contribute to that diversity.

Please feel free to post this program announcement in your department area. This announcement will also be posted on the Internet at <http://www.ibm.com/university/phdfellowship> on September 18, 2014 and will be linked to the Internet nomination form. Award recipients will be finalized mid February, 2015 followed by emails to all participants. All supporting documents for the fellowship, such as student's resume, and endorsement by the department head as well as the nominator's recommendation must be included in the nomination form. We ask that each department submit no more than two new nominations (in addition to any existing fellowship nominations to compete for a renewal). In cases of more than one nomination for a fellowship (including competing renewal nominations), the department head's endorsement must include an indication of the relative merits of all the candidates and the department's prioritization of these candidates. Students from Europe and Russia may be nominated in their first year of study in their doctoral program. Outside of Europe and Russia students must be enrolled full-time in a college or university Ph.D. program, and they must have completed at least one year of study in their doctoral program at the time of their nomination. Students from U.S. embargoed countries are not eligible for the program.

IBM University Relations Ph.D. Fellowships are awarded worldwide. IBM Ph.D. Fellows receive a stipend for the academic year 2015-2016. Fellowships vary by country/geographic area and the students will be informed at the time of the award what the value is for their country/geographic area. All IBM Ph.D. Fellows are matched with an IBM Mentor according to their technical interests, and they are strongly encouraged to participate in at least one internship at IBM while completing their studies. While students may accept other supplemental fellowships, to be eligible for the IBM Ph.D. Fellowship they may not accept a major award in addition to the IBM Ph.D. Fellowship. Students in Europe and Russia may accept government scholarships and remain eligible for the IBM Ph.D. Fellowship.

We look forward to receiving your department's nominations.

For further information, see your IBM contact, visit the website above, or contact [phdfellow@us.ibm.com](mailto:phdfellow@us.ibm.com)

Thank you.

IBM Global University Relations