

2017-2018 IBM Ph.D. Fellowship Program

Dear Faculty Colleague:

IBM is pleased to announce the IBM Ph.D. Fellowship program for the 2017-2018 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 15 to October 25, 2016.

The IBM Ph.D. Fellowship Awards Program is an intensely competitive global program, which honors exceptional Ph.D. students who have an interest in solving problems that are important to IBM and fundamental to innovation in many academic disciplines and areas of study. This includes pioneering work in: cognitive computing and augmented intelligence; quantum computing; blockchain; data-centric systems; advanced analytics; security; radical cloud innovation; next-generation silicon (and beyond); and brain-inspired devices and infrastructure.

The academic disciplines and areas of study include: computer science and engineering, electrical and mechanical engineering, physical sciences (including chemistry, material sciences, and physics), mathematical sciences (including big data analytics, 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), and industry solutions (healthcare, life sciences, education, energy & environment, retail and financial services).

IBM brings together hundreds of researchers who possess deep industry expertise across domains. Collaborating with clients in the field and in its global THINKLab network, IBM addresses some of the most challenging problems and creates disruptive technologies that hold the potential to transform companies, industries and the world at large. For more than seven decades, IBM has collaborated with clients and universities to work on multi-disciplinary projects that quickly lead to prototypes, as well as long-term projects that last for years. IBM has an environment that nurtures some of the most innovative and creative thinking in the world.

Additionally, IBM is paying special attention to the following areas of focus for 2017-2018:

- **Quantum Computing**

IBM Research has made quantum computing available to anyone through a first-of-a-kind quantum computing platform delivered via the IBM Cloud. IBM scientists built a cloud-enabled quantum computing platform called [IBM Quantum Experience](#) that allows users to run algorithms and experiments on IBM's five quantum bit (qubit) processor, work with the individual qubits, and explore tutorials and simulations around what might be possible with quantum computing. By giving hands-on access to IBM's experimental quantum systems, the IBM Quantum Experience will make it easier for researchers and the scientific community to accelerate innovations in the quantum field, and help discover new applications for this technology.

- **Cognitive Computing**

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 IBM Watson for taking the research technology to market.

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

Next generation computer hardware and software architecture will enable the systems and datacenters of the future, providing the foundation for our enterprise cloud computing capabilities. The next-generation software architecture will provide contextual, adaptive security and compliance and enable DevOps solutions that remove bottlenecks in software development to achieve continuous delivery of software-driven innovation. Applying lean and agile principles across the software life cycle, DevOps addresses culture, process and tools to drive faster innovation and feedback that ultimately improve the customer experience

- **Fundamental science and technology**

New materials, devices, and processes to extend core semiconductor logic and memory technology further into the nanotechnology regime, new bleeding edge technologies for future microprocessors, memories and systems, and new

computing devices and architectures (e.g. neuromorphic and quantum) beyond the conventional von Neumann architecture and technologies towards advanced wearables, machine intelligence and cognitive environments.

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 display the attached program announcement poster in your department office(s). This announcement will also be posted on the Internet at <http://www.ibm.com/university/phdfellowship> on September 15, 2016 and will be linked to the Internet nomination form. Award recipients will be finalized early March, 2017 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 2017-2018. 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

Thank you.

IBM Global University Relations