

# Battelle/MIT Postdoctoral Associate Program

## **Next application deadline: August 1st, 2017**

The Battelle Memorial Institute and MIT Department of Mechanical Engineering are inviting applications to the Battelle/MIT Postdoctoral Associate Program supporting innovative research with relevance to national security. We are particularly interested in proposals that emphasize fundamental research in year one, with the potential for reduction to practice in year two. Successful applicants will have access to Battelle advisors during the second phase who can assist with technology transfer challenges including ultimate transition to the commercial market.

**Stipend and allowances:** Successful applicants will receive a stipend of of \$65K/year, a competitive benefits package, and a discretionary fund of \$5K to be used for travel and other expenses related to the proposed project.

**Duration:** One year with the option to renew for a second year if Battelle reviewers and the sponsoring scientist are satisfied with progress.

**Start Date:** Start dates may vary depending on the availability of the applicant and sponsoring scientist. They typically will commence within three months after notification of selection.

## **Areas of Interest**

Target areas of interest for the 2017/2018 academic year include, but are not limited to:

- Autonomy, especially blended man-in-the-loop and autonomous system architectures and algorithms for low data rate / delay tolerant undersea applications of tele-operated dexterous manipulation.
- “System of systems” for Autonomy architectures. Users will increasingly wish to take advantage of capabilities which sit in different autonomy architectures (and the vehicles being controlled by these autonomy architectures). Problem solutions demonstrating the benefits of integration of MOOS-IvP and Neptune would be highly desirable.
- Undersea Acoustic Communications, particularly transducer and/or signal processing approaches for improving data capacity and/or range, including but not limited to, Multi-Input-Multi-Output (MIMO) processing, space-time processing and high-order modulation.
- Undersea Optical Communications, including source and detector development, modulation schemes, and signal processing for improving data capacity and/or range of the optical link.
- Investigation of Position, Navigation and Timing (PNT) solutions without the use of GPS in aerial, surface, and/or undersea environments.

## **How to Apply**

**Application Periods.** Applications will be accepted twice per year, on February 1st and August 1st. If interested applicants do not have in mind a sponsoring scientist at MIT, they should submit one or two short proposed project descriptions, along with a CV, no later than two months prior to the application deadline. MIT will introduce possible sponsoring scientists from the faculty to qualified applicants.

**Eligibility.** Candidates must hold a PhD in engineering, physics, mathematics or other affiliated field at the start of the postdoctoral period. Applicants must identify a faculty advisor/sponsoring scientist in the MIT Department of Mechanical Engineering who will be responsible for providing space and mentorship for the postdoctoral associate. ***It is the applicant's responsibility to contact the sponsoring scientist and obtain a letter of support.*** All application materials may be submitted electronically to Geoff Fox ([gfox@mit.edu](mailto:gfox@mit.edu)) or mailed to:

MIT/Battelle Postdoctoral Associate Program  
c/o Geoff Fox  
Massachusetts Institute of Technology, Rm 5-204  
77 Massachusetts Avenue  
Cambridge, MA 02139

A complete application package consists of:

1. **Cover page.** The cover page should include the applicant's full name; contact information (including email address); citizenship; PhD field, date and granting institution; name and contact information of sponsoring scientist.
2. **Project description** (not to exceed 4 pages of text). ***We recommend that this include a one page Executive Summary outlining the broader impacts of the proposed work*** (note that this section will be read by people with technical backgrounds who may not necessarily be experts in your field). The remaining pages should include a technical description of the proposed research. This may include an introduction or background section; a statement of research objectives, methods, relevance to target areas of interest; plan for reduction to practice; and a justification of the choice of sponsoring scientist(s).
3. **CV or biographical sketch** (not to exceed 2 pages).
4. **One letter of recommendation** (This letter should be from someone other than the sponsoring scientist; letters can be sent directly to [gfox@mit.edu](mailto:gfox@mit.edu)).
5. **Letter of reference from the MIT sponsoring scientist.** The letter should indicate both expected availability for consultation during the requested tenure period and agreement to work with the postdoctoral associate. The letter should also address the appropriateness of the match between the proposed project and the sponsoring scientist. Letters should be sent directly to [gfox@mit.edu](mailto:gfox@mit.edu) from the sponsoring scientist.

Complete applications received before the application due date will receive full consideration.

## Contacts

Administrative questions should be addressed to Mr. Geoff Fox ([gfox@mit.edu](mailto:gfox@mit.edu)). All other inquiries may be sent to the program coordinator Dr. Michael Benjamin ([mikerb@mit.edu](mailto:mikerb@mit.edu)).