

## A NEW APPROACH TO TRAINING IMAGING SCIENTISTS

The Howard Hughes Medical Institute (HHMI) partnered with the NIH National Institute of Biomedical Imaging and Bioengineering (NIBIB) to support a new Interfaces Program at the University of Pennsylvania for PhD training in Biomedical Imaging Sciences. The objective is to build on the world class imaging research environment at Penn to develop a cadre of scientists with the knowledge and vertically integrated set of skills to conduct research at the interface between clinically-relevant imaging and the biomedical, physical, chemical, engineering, and computational sciences.

The specific interdisciplinary candidate the program seeks to train is the exceptional individual with both the potential and motivation in becoming part of the next generation of leaders in hypothesis driven, clinically focused, quantitative biomedical imaging research.

To make a significant impact on public health, the program integrates quantitative and technical training with a systematic and immersive exposure to biomedical and health sciences through concurrent coursework in medicine and imaging sciences, taught by faculty from the schools of medicine, engineering and arts and sciences. Interfaces scholars graduate with fluency in the language and culture of medicine critical to their development not only as independent, productive research scientists in translational imaging but as leaders in multi- and inter-disciplinary teams.

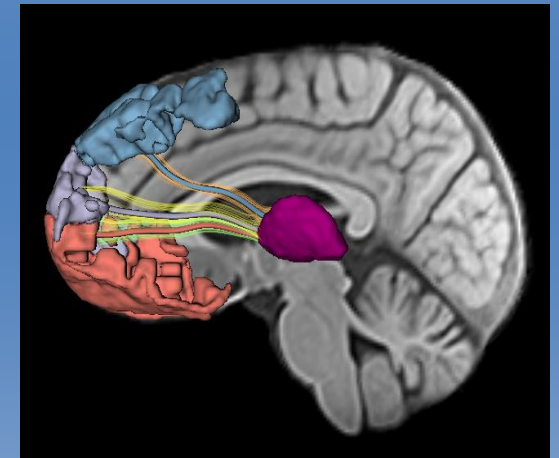


**NIBIB-HHMI  
Interfaces Program  
University of Pennsylvania  
3600 Market Street,  
Suite 370  
Philadelphia, PA 19104**

**Phone (215) 614-0231  
Fax (215) 615-3681  
[medimage@mail.med.upenn.edu](mailto:medimage@mail.med.upenn.edu)**

# NIBIB-HHMI Interfaces Program

**Graduate Program in  
Biomedical Imaging  
& Informational Sciences**



**TRAINING FUTURE  
LEADERS IN IMAGING**

## PROGRAM CURRICULUM

Students undertake Modules 1 and 2 of the medical school coursework (including all lectures, dissections, labs, and small group discussions – excluding only the clinical sections) concurrently with a sequence of graduate level imaging science courses and labs designed for the program.

While we will work with each student to tailor the curriculum to suit his/her particular research interests, the first 18 months of training will focus on core program coursework

Below is a sample curriculum:

- Fall Year 1:
  - AM – **Medical school Module 1** courses
  - PM – Imaging Acquisition 2 days per week, Imaging lab 1 time biweekly
- Spring Year 1:
  - AM – **Medical school Module 2** courses
  - PM – Imaging Analysis 2 days per week, Imaging lab 1 time biweekly
- Summer Year 1: **Research rotation**
- Fall Year 2:
  - AM – **Medical school Module 2** courses
  - PM – Imaging Applications 2 days per week
- Spring Year 2:
  - Imaging Reconstruction, Elective Math course, **Research rotation(s)**
- Summer Year 2: **Thesis Research**
- Fall Year 3:
  - Preliminary examinations, **Thesis Research**

## PROGRAM FACULTY

The program takes a broad view of what qualifies as topics or areas of interest for imaging thesis research. Students in the program have the ability to work with any faculty member across Penn's campus. Program leadership works individually with each trainee to identify candidate mentors with whom to carry out thesis research.

A diverse set of departments is represented among active program faculty. Below is a sample of faculty, their departmental affiliation, and their research interests currently working with students in the program. Program leadership is denoted with \*:

- Dr. Andrew Maidment\* (Radiology)
  - Breast imaging and tomosynthesis
- Dr. Andrew Tsourkas (Bioengineering)
  - Molecular imaging
- Dr. Felix Wehrli (Radiology/Biochemistry & Biophysics)
  - Quantitative characterization of tissue microarchitecture
- Dr. Jason Burdick (Bioengineering)
  - Developing degradable polymeric biomaterials
- Dr. Jim Gee\* (Radiology/CIS)
  - Image analysis
- Dr. Ravinder Reddy (Radiology)
  - Musculoskeletal imaging
- Dr. Robert Gorman (Cardiovascular Surgery)
  - Pathophysiology and treatment of structural heart disease, cardiac imaging



## PROGRAM BENEFITS

Individuals who successfully matriculate into the program will be awarded a 2-year fellowship that covers the didactic training portion of their graduate studies, in addition to gaining access to many other opportunities, including:

- Participation in a cohort. Each cohort is encouraged to help each other through the rigorous coursework in a non-competitive environment.
- Receptions and other events to meet imaging faculty across the campus in multiple disciplines.
- Ongoing professional development workshops and events specifically designed for Interfaces program students, including networking opportunities.
- Travel and training materials funds.
- Unlimited access to program leadership.

## HOW TO APPLY

Ideal candidates will have a strong interest in translational-oriented biomedical imaging research and possess a track record that demonstrates ability to handle the program's intensive training and meet performance expectations.

For more information, please contact Dr. James Gee, Director ([gee@upenn.edu](mailto:gee@upenn.edu)) or Dr. Ann Tiao, Associate Director ([atiao@upenn.edu](mailto:atiao@upenn.edu)).

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