What is the most important contribution that the NIBIB can make or issue that the NIBIB can address in approximately the next five years to effectively meet its mission and address national health care needs?

- Support centers of excellence in bioengineering.
- Foster the development of new technology for the detection, treatment, or basic understanding of an important human disease.
- Image Guided Therapy.
- The development and evaluation of biosensors that address specific critical clinical problems.
- Interpret trends in molecular medicine and genomics research; support all aspects of image research (detectors, image enhancing agents, models systems) directed at interrogating disease processes at cellular & molecular levels.
- Facilitate greater integration of engineering within all relevant Institutes and Centers at NIH.
- Effect meaningful collaborations between the engineering intensive institutions and biomedical researchers.
- Develop technologies to image structure and function from the molecular to organ level and associated computational models that enable prediction of system function.
- Develop integrative, mechanism-based computational biology models - including organ-scale hierarchy.
- HT data (chemical and biological) integrated through large scale models.
- Transform interdisciplinary research from something special to business as usual for appropriate biomedical research projects.
- Fund translational research in BME & BMI in development, clinical implementation, outcomes.
- Create a culture which emphasizes 1) initiation and discovery and 2) translation and dissemination.
- Train more PhD and MD researchers with a balance among basic and clinical researchers.
- Take the lead in steering the development of emerging technologies towards noninvasive diagnosis and therapy, tissue engineering and regenerative medicine.

- Achieve effective integration of teams: engineering/physical sciences & biomedical sciences.
- Support the development of advanced technologies to investigate disease at the sub-cellular level (e.g. spectrochemical tools).
- Create “Centers of Imaging Excellence” where an environment is established that fosters technical development, translation, and clinical research.
- Bring new diagnostic technologies to the clinic.
- Biomaterials & Tissue Engineering – create new, smart or self-monitoring materials designed for cell-, drug-, and gene-based therapies.
- Fundamental research of new technology platforms for biomedicine.
- Support for research in biomaterials, bio-inspired and biomimetic materials science.
- Team with NIH ICs to fully Engineer Health Technologies.
- Enhance the awareness of BMI and BME and Health Science specialists and society at large.
- An environment that fosters innovation in imaging & bioengineering technology.
- Set up networks to integrate research in biomedical imaging and engineering.
- Support multi-disciplinary research training and infrastructure.
- Improve operating room technologies – real-time, 3D imaging of soft tissue disease, robotic manipulation and systems integration.
- Substantially increase the number of engineers that are supported by NIH, foster graduate programs that create scientists and engineers who can address biomedical problems with quantitative approaches.
- Develop training programs that produce graduates capable of integration of quantitative bioengineering, cell and molecular biological, and clinical sciences.
- Promote multi-center cooperative agreements to network existing centers and private sector to accelerate technology development, validation, regulation, and translation to clinical application.