



Stony Brook University

Biomedical Informatics Graduate Program at Stony Brook University (The State University of New York at Stony Brook)

Stony Brook University, the flagship State University of New York, is a member of the prestigious Association of American Universities (AAU) and co-manager of the nearby Brookhaven National Laboratory (BNL). It is located on Long Island, close to beaches and New York City.

Biomedical Informatics (BMI) is an interdisciplinary field that investigates and explores the effective use of biomedical data, information and knowledge for scientific inquiry, problem-solving and decision-making, driven by efforts to improve human health. Stony Brook embeds BMI's computer engineering and applied sciences education in research and operations at a major medical center, where quantitative sciences have emerged at the very core of efforts to understand, prevent and treat diseases. The department is also part of the AI Institute and the Institute for Engineering-Driven Medicine at Stony Brook University.

The Department of Biomedical Informatics is dually housed in the School of Medicine and in the College of Engineering and Applied Sciences. Our students can access resources from both schools. BMI faculty conducts cutting-edge interdisciplinary research in Data Science, Imaging Informatics, Systems Biology, Computational Biology and Bioinformatics, Clinical Informatics, Computational Science, Population Health, AI in Healthcare and Visualization. Graduates can expect careers in academia, research institutions, hospitals, industry and government. Students also have opportunity for summer internships in major companies around New York City.

The Stony Brook Fellowship in Clinical Informatics is a 2-year program for US board-certified physicians seeking in-depth expertise in clinical informatics along with applications of clinical data analytics and machine learning applied to medical applications. The CI Fellowship is offered through Stony Brook Medicine's Pathology Department; it is open to eligible candidates from any medical specialty.

For graduate programs, we offer Ph.D. degrees, M.S. degrees and Advanced Graduate Certificates in three tracks:

- **Clinical Informatics:** Enhancing the quality and efficiency of clinical workflows
- **Imaging Informatics:** Integrative analysis and management of biomedical images
- **Translational Bioinformatics:** Application of informatics methods to advance patient-related biomedical research, from clinical genomics to population health

The application deadlines for Fall 2020 are December 1, 2019 for the Ph.D. program, and March 1, 2020 for the M.S. program and the Advanced Graduate Certificate program.

To apply, please go to: https://bmi.stonybrookmedicine.edu/education/prospective_students

The admission and degree requirements are detailed in the Stony Brook Graduate Bulletin:

<http://sb.cc.stonybrook.edu/gradbulletin/current>

You can reach us at: (631) 638-2590 or BMIGradEd@stonybrookmedicine.edu

Our website: <https://bmi.stonybrookmedicine.edu>



Example Research Projects

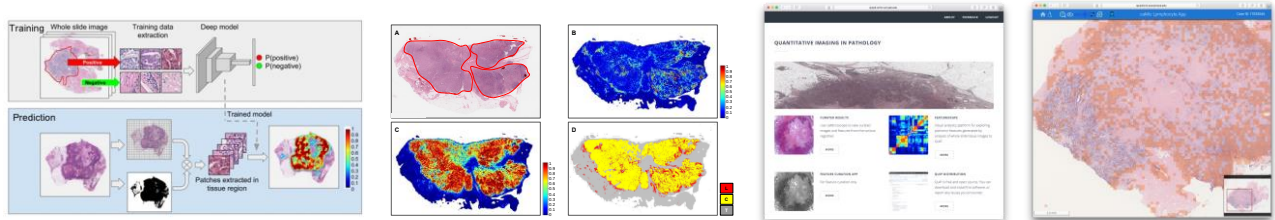
From Glass Slides to Big Data to Knowledge



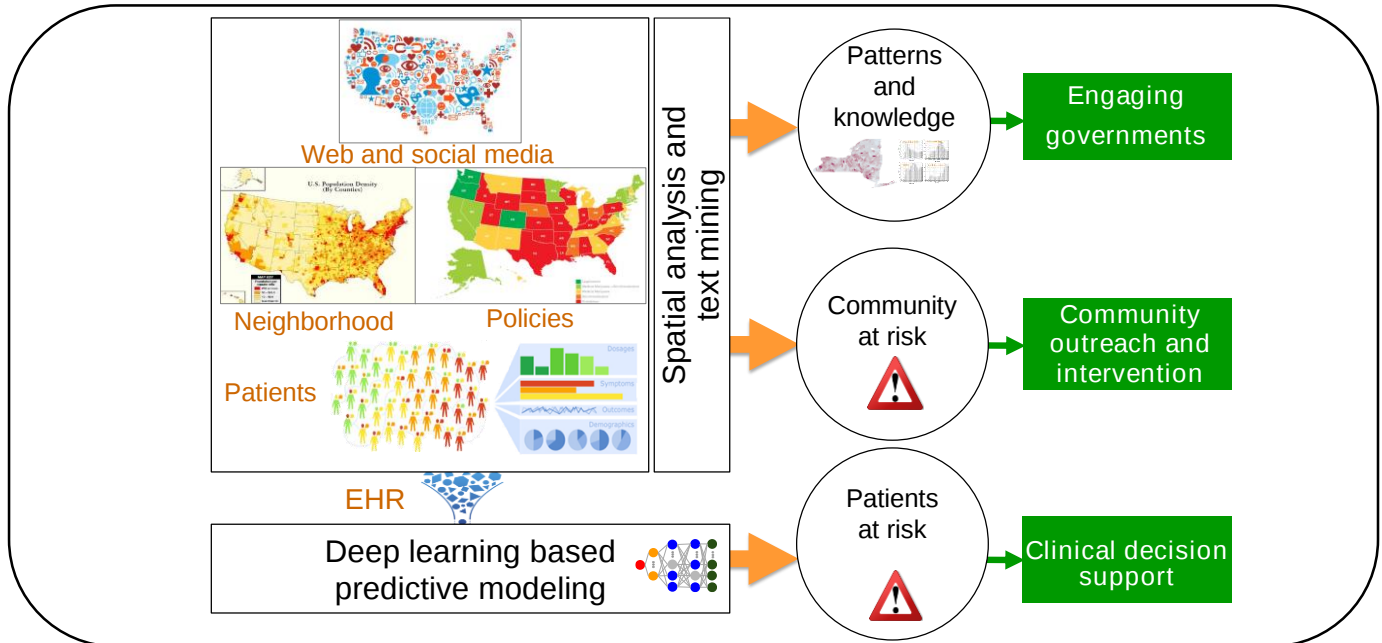
New machine/deep learning algorithms to extract, quantify and characterize features and complex patterns

Innovative software tools to manage, process, explore extremely large volumes of image and feature data

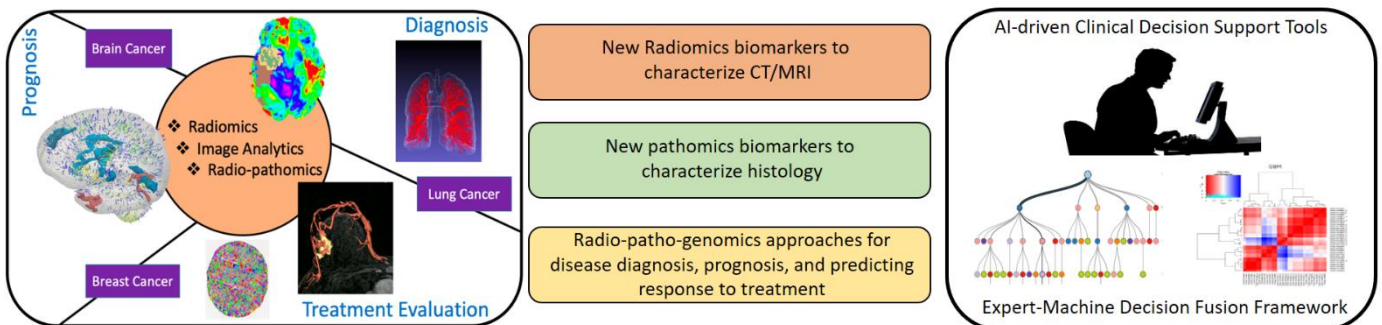
Novel methods to integrate imaging features and clinical outcome and genomic signature data



Big Data and AI Driven Opioid Epidemic Research

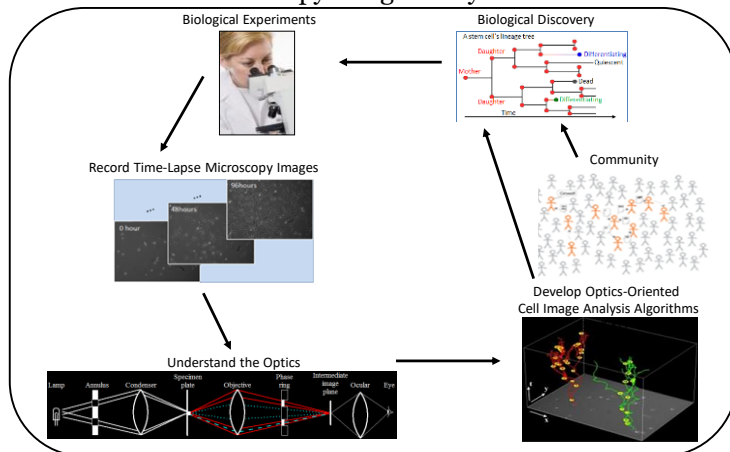


Radiomics and Radiogenomics for Precision Oncology

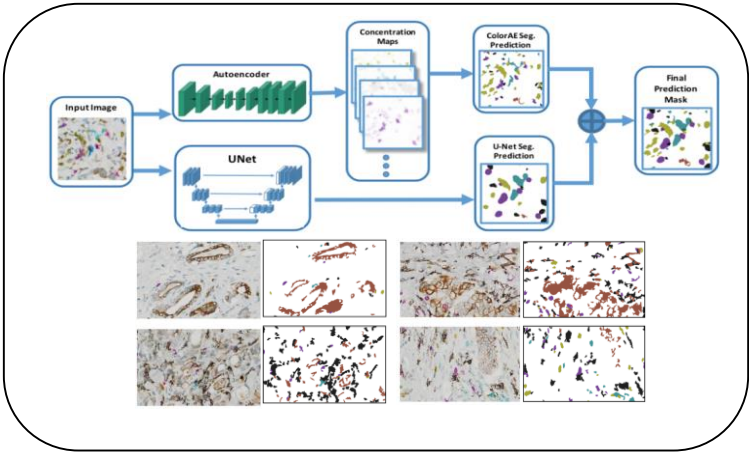


Example Research Projects

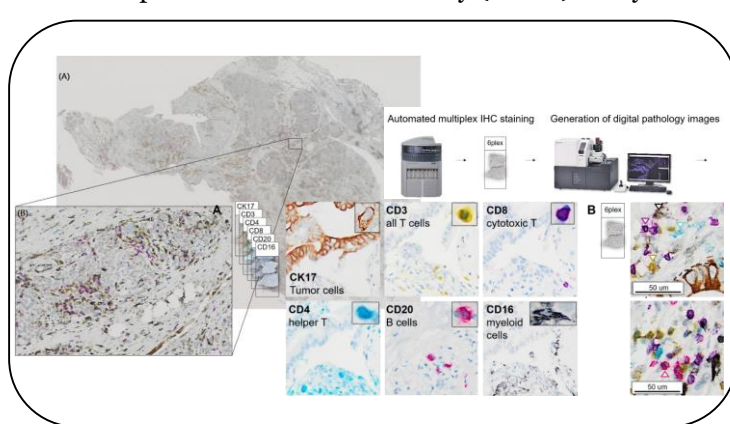
Keeping Optics and Human in the Loop of Microscopy Image Analysis



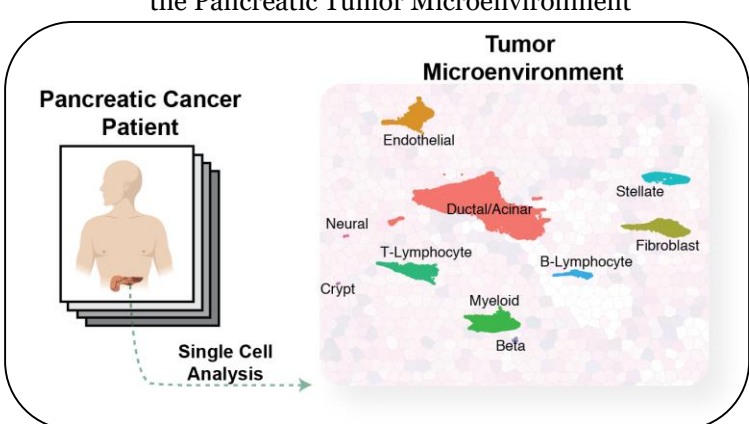
Deep Learning Based Analysis of Immune and Tumor Cells for Tumor Microenvironment Study



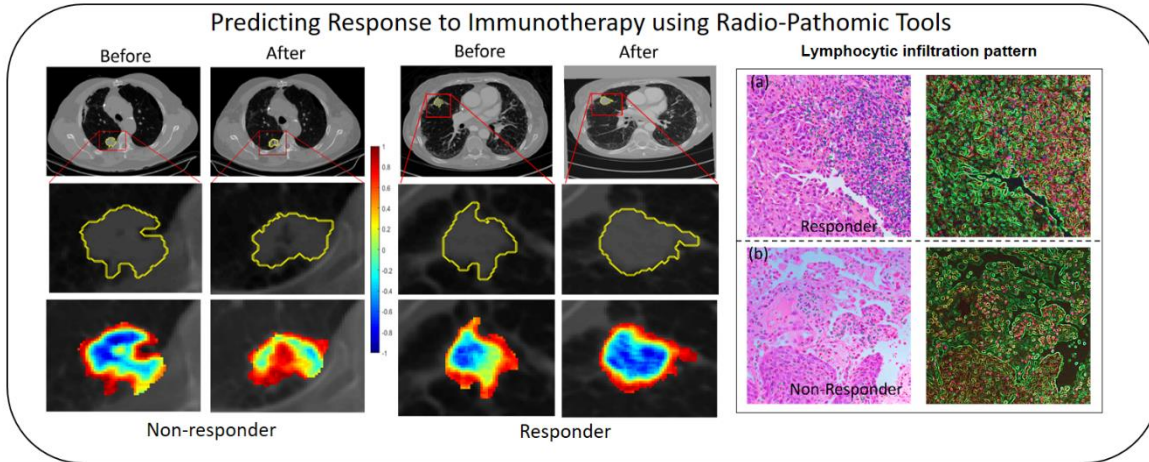
Multiplex Immunohistochemistry (mIHC) Analysis



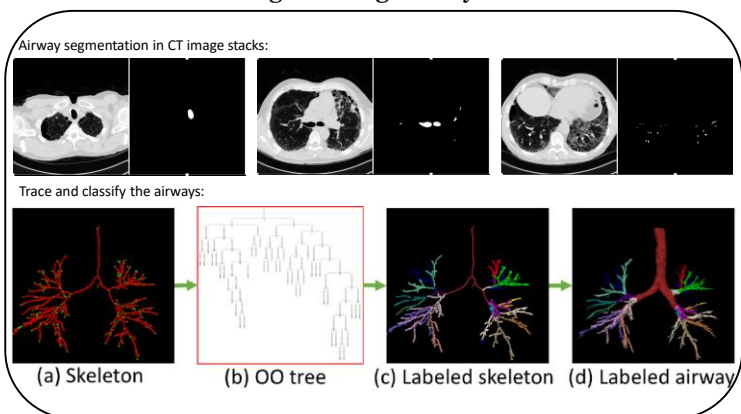
Single-Cell Deconvolution of the Pancreatic Tumor Microenvironment



Predicting Response to Immunotherapy using Radio-Pathomic Tools



Lung CT Image Analysis



Blockchain Based EHR Data Sharing and Management

