Icahn School of Medicine at Mount Sinai

BioMedical Engineering and Imaging Institute

Job Title: Biomedical Software Developer

Job Summary

The Biomedical Engineering and Imaging Institute (BMEII) at the Icahn School of Medicine at Mount Sinai is inviting candidates for a Biomedical Software Developer. The position will specialize in the design and support of complex scientific software for basic and clinical research studies. This position requires active collaboration with researchers, providing technical expertise, and developing innovative solutions. As the lead developer for shared Institute informatics software packages, the Biomedical Software Developer will drive improvements in usability, performance, and algorithms, contributing to advancements in research capabilities. Additionally, this role involves data visualization, application of machine learning algorithms, and fostering a professional, collaborative software engineering culture within the Institute.

BMEII is at the forefront of transformative research, focusing on multimodality imaging for brain, heart, and cancer research. Additionally, the institute is engaged in cutting-edge research in nanomedicine for precision imaging and drug delivery. As a research catalyst, BMEII pioneers a new generation of translational and molecular imaging methodologies, validating imaging modalities in both preclinical basic science and clinical research settings.

BMEII is a center of excellence in innovation, training, and entrepreneurship, contributing to the transformation of Medicine. In addition to existing programs, the institute is launching new initiatives in:

1. **Artificial Intelligence/Machine Learning (AI/ML):** Explore the intersection of AI and healthcare to advance medical imaging and diagnostics.
2. **Next Generation Medical Technologies:** Contribute to the development of innovative medical devices, sensors, and robotics.

Computer Vision, Virtual, and Augmented Reality: Drive research in the application of computer vision and immersive

BMEII is expanding its facilities to support various research areas, including the development and validation of novel devices and the application of artificial intelligence to engineering in medicine. The institute boasts well-established imaging resources, including human imaging scanners (3T, 7T, PET & CT) and a microimaging facility (micro 7T, 9.4T, micro-ultrasound, biophotonics & micro PET/CT).

Duties and Responsibilities

1. Lead Developer Role: Take ownership as the lead developer of shared Institute informatics software packages (e.g., co-expression analysis, causality inference testing).

Collaborate with researchers to enhance usability, performance, and algorithms. Apply these tools to relevant datasets.

2. Data Visualization: Create intuitive visualizations of large-scale datasets, prioritizing ease of user access and provenance of data collection. Engage with multiple teams to understand client challenges, prototype new ideas, and contribute to solutions that improve application performance.
3. Sequence Analysis Systems: Contribute to all aspects of the sequence analysis systems, including UI, web applications/interfaces, sequence analysis pipelines, variant databases, etc. Utilize HTML/Javascript, Python, R, Java/Scala, and various software tools.
4. Machine Learning: Collaborate with Institute researchers and institutional collaborators to develop and apply machine learning algorithms and other data mining techniques.
5. Software Engineering Culture: Contribute to a professional software engineering culture, including participation in code reviews, mentoring junior developers, and engaging in activities to enhance the Institute's software engineering capabilities.
6. Scientific Contributions: Write or contribute to scientific publications as appropriate. Contribute to grant applications when needed.
7. Other Related Duties: Perform other related duties as required.

Education Requirements

Senior computer scientists with M.S. or equivalent in CS, Electrical Engineering or related field.

Experience Requirements

- 2+ years of experience with JavaScript.
- Experience in UI development, data analysis and visualization, and software design.
- Experience in machine learning techniques is required, ideally with published work and/or code available. Expertise with deep learning frameworks is preferred.
- Proficiency in Git and GitLab.
- Front-end development experience using JavaScript frameworks (AngularJS, Angular, Vue, React, or Dojo).
- Expertise in HTML and CSS, including CSS frameworks (Material Design, Bootstrap, or Foundation).
- Experience in usability analysis, testing, and client-facing engagements, including design discussions and product demonstrations.
- Expertise with programming and statistical software experience in Python and/or R.
- Experience with Flask and Django frameworks.
- Strong communication and presentation skills with fluency in spoken and written English

General Skills and Competencies

Superior written and oral communication skills.

Interested individuals should send a Cover Letter, CV, and a statement of research interests and plans to Dr. Zahi A. Fayad (zahi.fayad@mssm.edu).

Compensation Statement

The Mount Sinai Health System (MSHS) provides a salary range to comply with the New York City Law on Salary Transparency in Job Advertisements. The salary range for this role is $75,000.00 - $130,000.00 Annually. Actual salaries depend on a variety of factors, including

experience, education, and hospital need. The salary range or contractual rate listed does not include bonuses/incentive, differential pay or other forms of compensation or benefits.

Non-Bargaining Unit

About the Mount Sinai Health System:

Mount Sinai Health System is one of the largest academic medical systems in the New York metro area, with more than 43,000 employees working across eight hospitals, more than 400 outpatient practices, more than 300 labs, a school of nursing, and a leading school of medicine and graduate education. Mount Sinai advances health for all people, everywhere, by taking on the most complex health care challenges of our time — discovering and applying new scientific learning and knowledge; developing safer, more effective treatments; educating the next generation of medical leaders and innovators; and supporting local communities by delivering high-quality care to all who need it. Through the integration of its hospitals, labs, and schools, Mount Sinai offers comprehensive health care solutions from birth through geriatrics, leveraging innovative approaches such as artificial intelligence and informatics while keeping patients' medical and emotional needs at the center of all treatment. The Health System includes approximately 7,400 primary and specialty care physicians; 13 joint-venture outpatient surgery centers throughout the five boroughs of New York City, Westchester, Long Island, and Florida; and more than 30 affiliated community health centers.

The Mount Sinai Health System is an equal opportunity employer. We comply with applicable Federal civil rights laws and does not discriminate, exclude, or treat people differently on the basis of race, color, national origin, age, religion, disability, sex, sexual orientation, gender identity, or gender expression. We are passionately committed to addressing racism and its effects on our faculty, staff, students, trainees, patients, visitors, and the communities we serve. Our goal is for Mount Sinai to become an anti-racist health care and learning institution that intentionally addresses structural racism.

EOE Minorities/Women/Disabled/Veterans

Compensation
The Mount Sinai Health System (MSHS) provides a salary range to comply with the New York City Law on Salary Transparency in Job Advertisements. The salary range for the role is $75000 - $130000 Annually. Actual salaries depend on a variety of factors, including experience, education, and hospital need. The salary range or contractual rate listed does not include bonuses/incentive, differential pay or other forms of compensation or benefits.