Postdoctoral Fellow in AI/Ocular Biomechanics (Emory University)
Emory University

Job Title	Postdoctoral Fellow in AI/Ocular Biomechanics (Emory University)
Department	Biomedical Engineering & Ophthalmology
Institution	Emory University Atlanta, Georgia
Date Posted	Oct. 17, 2024
Application Deadline	Open until filled
Position Start Date	Available Immediately
Job Categories	Post-Doc
Academic Field(s)	Mechanical Engineering Engineering Physics Engineering Mechanics Computer Science Bioengineering (all Bio-related fields) Engineering - Other
Apply By Email	
Job Description	

JOB DESCRIPTION: The Ophthalmic Engineering & Innovation Laboratory (OEIL), led by Associate Professor Michae?l J.A. Girard, and jointly located in the Department of Ophthalmology at Emory University and the Wallace H. Coulter Department of Biomedical Engineering at Georgia Tech/Emory is looking for 1 bright, dynamic, and highly motivated individual to perform translational research at the exciting interface between AI and Physics with an emphasis on Biomechanics/Mechanobiology and applications to Ophthalmology.

For this position, the successful candidate will develop a series of explainable AI algorithms combined

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with 3D biomechanical models to unveil axonal injury mechanisms in glaucoma patients, enhancing our understanding of why some individuals go blind despite existing treatments. Our goal is to fully assess the in vivo biomechanics, the blood perfusion, and the complex 3D structure of retinal and optic nerve head (ONH) cells and tissues – the major sites of injury in glaucoma. We aim to identify new cellular, vascular, and connective tissue markers for glaucoma and motivate the development of novel treatment strategies.

The candidate will have access to:

- State-of-the-art and recent optical coherence tomography (OCT) imaging technology for use in patients including visible-light OCT, adaptive-optics OCT, polarization-sensitive OCT, ultra-wide field OCT, and OCT elastography.

- An extremely large retrospective OCT database (n>200,000) to be exploited by 3D AI algorithms.

- A large cohort of glaucoma patients that will undergo advanced OCT imaging at Emory.

- A wide international network of world-renown clinical collaborators (USA, Europe, Asia, Africa, Australia) that will provide further imaging data, as fostered by the PI over the past 20 years.

- Excellent animal facilities in the Department of Ophthalmology to further validate our findings.

- World class research facilities at Emory University and Georgia Tech from the No. 1 ranked Biomedical Engineering program in the nation (e.g. https://med.emory.edu/research/research-innovation/hsrbii/index.html); easy access to 170+ world-class Engineering PIs and their labs.

- Top notch AI resources and a vibrant AI community (https://aihealth.emory.edu, https://aihumanity.emory.edu).

- Strong links with industry and our experience at spinning off or licensing technologies (e.g. https://www.linkedin.com/posts/michael-girard-26520b19_spectralis-oct-opticnervehead-activity-7187349443824836608-PlzL).

- Support and career advice.

Our AI/modeling platform extends beyond glaucoma to tackle a broader spectrum of optic neuropathies, neuro-ophthalmic and neurological disorders (e.g. Alzheimer’s disease), but also myopia. Candidates should be prepared for an intellectually rich and stimulating environment.

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QUALIFICATIONS:

- A PhD in Biomedical Engineering, Mechanical Engineering, Computer Science, Electrical Engineering, Civil Engineering, or other related disciplines.

- Excellent programming skills.

- Well-versed in the latest developments in deep learning methodologies (e.g. Geometric Deep Learning and Physics-informed Learning), Computer Vision or Computational Imaging.

- Strong foundation in computational fluid dynamics and continuum mechanics.

- Knowledge of the Finite Element Method, Virtual Fields Method, Digital Volume Correlation, Optical Coherence Tomography, and Ophthalmology is highly encouraged.

- Excellent scientific writing skills.

- Willingness to contribute to large grant applications and student supervision.

- Skilled in engaging with a diverse group of professionals, including Ophthalmologists, Neurologists, Mathematicians, Computer Scientists, and Engineers, to facilitate effective communication and collaboration.

- Soft skills: self-motivated, adaptable, and a team player.

The positions are available August 1st of this year, and the candidates can expect a competitive salary.

To apply, please email a detailed CV, a cover letter, and the names of two references to (please write “AI- Biomechanics Postdoctoral Position” in the subject line):

Dr. Michae?l J.A. Girard, Ophthalmic Engineering & Innovation Laboratory (OEIL) Emory University & Georgia Tech
Email: michael.girard@emory.edu

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EEO/AA Policy

Emory University is dedicated to providing equal opportunities and equal access to all individuals regardless of race, color, religion, ethnic or national origin, gender, genetic information, age, disability, sexual orientation, gender identity, gender expression, and veteran's status. Emory University does not discriminate in admissions, educational programs, or employment on the basis of any factor stated above or prohibited under applicable law. Students, faculty, and staff are assured of participation in university programs and in the use of facilities without such discrimination. Emory University complies with Executive Order 11246, as amended, Section 503 of the Rehabilitation Act of 1973, the Vietnam Era Veteran's Readjustment Assistance Act, and applicable executive orders, federal and state regulations regarding nondiscrimination, equal opportunity, and affirmative action. Emory University is committed to achieving a diverse workforce through application of its affirmative action, equal opportunity, and nondiscrimination policy in all aspects of employment including recruitment, hiring, promotions, transfers, discipline, terminations, wage and salary administration, benefits, and training. Inquiries regarding this policy should be directed to the Emory University Department of Equity and Civil Rights Compliance, 201 Dowman Drive, Administration Building, Atlanta, GA 30322. Telephone: 404-727-9867 (V) | 404-712-2049 (TDD).

Contact Information

Please reference Academickeys in your cover letter when applying for or inquiring about this job announcement.

Contact

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