

Postdoctoral Associate Position in Modeling and Measuring Electrical Conduction in the Implanted Cochlea

Researchers: Prof. Hanif Ladak & Dr. Sumit Agrawal

Department: Medical Biophysics

Start Date of Appointment: August 2026

Duration: 12 months with the possibility of extension up to additional 12 months, contingent upon satisfactory performance and funding availability.

Hours per week: 40

Remuneration: \$65,000 per annum

Benefits: See https://www.uwo.ca/hr/benefits/your_benefits/pda

Deadline: Rolling submission. Applications will be accepted until the position is filled.

Job Description

We are seeking a postdoctoral associate to join the Auditory Biophysics Laboratory at Western University. This position offers an opportunity to contribute to research aimed at improving our understanding of electrical stimulation in the implanted human cochlea and supporting the development of improved cochlear implant designs, surgical approaches, and clinical fitting strategies.

The successful candidate will work on a project focused on developing and experimentally evaluating subject-specific computational models of electrical conduction in the implanted cochlea. The research will make use of the laboratory's internationally recognized database of synchrotron and X-ray CT images, together with experimental electrical measurements, to study how cochlear anatomy, electrode position, and implant design influence patterns of electrical stimulation. The work is expected to combine biomedical imaging, finite-element modelling, experimental validation, and collaboration with academic and industry partners.

This role provides an opportunity to work at the intersection of auditory biophysics, biomedical imaging, computational modelling, and cochlear implant technology. The successful candidate will contribute to research that addresses critical questions in implant design and deployment, with the long-term goal of improving cochlear implant outcomes for patients.

Responsibilities:

- Conduct literature reviews and associated writing tasks;
- Process images for finite-element modeling, including image acquisition when required;
- Construct, simulate, test, validate, and optimize finite-element models of electrical conduction in the implanted cochlea;
- Acquire experimental electrical measurements for model validation;

- Draft technical reports;
- Write academic publications;
- Present research findings at scientific conferences and partner meetings;
- Collaborate with industry and other partners for knowledge exchange and methodological development;
- Mentor students;
- Other duties, as assigned.

Required Qualifications:

- Ph.D. in biomedical engineering, electrical engineering, mechatronics engineering, or a closely related discipline;
- Strong background in electrical engineering concepts relevant to bioelectric modelling, including tissue and material electrical properties, circuit theory, electromagnetics, and electrical instrumentation;
- Practical experience using finite-element analysis to model electrical conduction, electric fields, bioelectric systems, or related physical systems;
- Ability to work with experimental data and compare computational model predictions against measured results;
- Experience with biomedical image analysis, including segmentation;
- Strong written and oral communication skills, including the ability to prepare manuscripts, reports, and presentations;
- Ability to organize and prioritize work, manage multiple tasks, and meet project deadlines;
- Ability to work effectively in a collaborative research environment with students, faculty members, clinicians, and industry partners.

Desirable Qualifications:

- Familiarity with hearing science, auditory biophysics, otology, or cochlear anatomy;
- Experience with cochlear implants.

Application Instructions:

Interested applicants should submit the following documents to Prof. Ladak at hladak@uwo.ca with the subject line "Application: Postdoctoral Associate Cochlear Conduction Models."

- One-page cover letter detailing your qualifications and interest in this position;
- Curriculum Vitae;
- One sample first-author publication related to finite-element modeling;
- Names and e-mail addresses of two referees familiar with your academic work.

About Western

Western ranks as one of Canada's top research-intensive universities. From fundamental to applied discovery and other scholarly activities, its scholars advance knowledge that provides tangible benefits for the economic, social, health and cultural development of citizens in London, in Canada and around the world. Western Research supports scholars through collaboration, communication, and service. Western University and its affiliate colleges received more than \$267 million in research funding over the past year.

Western Values Diversity

The University invites applications from all qualified individuals. Western is committed to employment equity and diversity in the workplace and welcomes applications from women, members of racialized groups/visible minorities, Indigenous persons, persons with disabilities, persons of any sexual orientation, and persons of any gender identity or gender expression. Accommodations are available for applicants with disabilities throughout the recruitment process.