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Job Title Tenure Track Assistant Professor in Robotics and

Artificial Intelligence (AI)

Department Electrical and Computer Engineering

Institution University of Alberta

Edmonton, Alberta

Date Posted Nov. 1, 2024

Application Deadline Open until filled

Position Start Date July 2025

Job Categories Assistant Professor

Academic Field(s) Robotics

Electrical and/or Electronics

Computer Engineering

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Job Description

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Tenure Track Assistant Professor in Robotics and Artificial Intelligence (AI)

University of Alberta

The Department of Electrical and Computer Engineering in the <u>Faculty of Engineering</u> at the <u>University of Alberta</u> is seeking applications for a full-time tenure track Assistant Professor position in **robotics** and artificial intelligence (AI)



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. Consideration will be given to those at the rank of Associate Professor or Professor.

Applications are invited from candidates with a passion for advancing autonomous human-aware robotic systems to complement our current research and teaching expertise. Expertise at the intersection of areas including but not limited to robot learning, intelligent control and estimation for robotic systems, autonomous robot decision-making, real-time embedded systems, robot vision, and robot perception will be considered an asset. The ideal candidate works in domains such as robot reinforcement learning, robot autonomy and adaptive/shared autonomy, human-centric and human-augmentation robotic systems, and assistive, interactive, and collaborative robotics. We aim to contribute to building a better future for society, and encourage research, teaching, and service applications in areas such as human-robot interaction, human-centric soft robotics, medical robotics, and multi-agent systems.

Joining our department means collaboration opportunities with researchers and instructors across the departments of Electrical and Computer Engineering, Mechanical Engineering, and Computing Science. Our current research and teaching strengths are in a broad range of areas, including surgical robotics, rehabilitation and assistive robotics, wearable robotics, aerial and mobile robotics, manufacturing robotics, human-robot interaction, and interfaces, human movement analysis, haptics and telerobotics, cooperative autonomous systems, computer vision, robot control, robot learning, and computational intelligence for robotic systems, to name a few. As a new faculty member, you will have the opportunity to collaborate with researchers at various centres of expertise at the University of Alberta such as the Alberta Machine Intelligence Institute (Amii), Institute for Smart Augmentative and Restorative Technologies (iSMART), and many more.

The successful candidate will join a team of faculty members committed to an exceptional student experience. They will teach courses to the first cohort of students in the new Mechatronics and Robotics Engineering Cooperative <u>undergraduate program</u> once the program is launched. This program, developed with a strong emphasis on system design, hands-on learning, and cooperative education, efficiently integrates electrical, mechanical, and computer engineering to train the next generation of experts in mechatronics and robotics. The Department has over 1000 undergraduate students across the electrical and computer programs that will grow with the mechatronics program. There are opportunities to engage with students in and out of the classroom in research laboratories, capstone projects, and student clubs and teams, like Mission Space Walker, UAlberta Solar Car, and IEEE Student Branch. The Department's graduate program attracts students who are dedicated to developing in their area of expertise from schools worldwide and presently has an enrolment of over 450 students, including approximately 220 Ph.D. students. Through hands-on experiences in state-of-the-art labs and instruction from skilled faculty, we help students develop the skills they need to dream



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of and invent the technology of the future. More information is available on our website.

As we build our team, we recognize that our people are and will continue to be our greatest strength. Applicants who value working across disciplinary boundaries, within and outside engineering, as well as with communities and industry are strongly encouraged to apply. If you are looking to join a Faculty with a growing focus on robotics and AI, we welcome your application!

The Role and Responsibilities

The Assistant Professor role is the starting point on the academic faculty member career pathway at the University of Alberta. Faculty members are full members of the department and play an active role in democratic processes and governance. The responsibilities of the role include active participation in teaching, research, and service:

- Teaching (40%): Participation in teaching programs, including classroom teaching, supervision of students conducting research, and personal interactions with and advising students. An Academic Faculty member may decide on specific course content and instructional methodology, recognizing the approved course description, and academic policy approved by the Department, the Faculty, and the University. Teaching is year-round with most courses in the Fall (September to December) and Winter (January to April) semesters. Teaching assignments are decided in discussion with the Department Chair. As the Canadian Engineering Accreditation Board accredits the undergraduate degree programs in our Faculty, licensure as a Professional Engineer or Licensee in Alberta is required. Licensure must be obtained within five years of the hire date.
- Research (40%): Participation in research, including the preparation or performance of creative works and reflective inquiry, and disseminating research results by means appropriate to the discipline. Academic Faculty members are encouraged to seek funding for research from granting agencies or other sources.
- Service (20%): An Academic Faculty member shall be actively engaged in service to the University and participate in the collegial responsibilities of departmental, Faculty, and University governance. Provision of service to the discipline of the Academic Faculty member; participation in the governance of the University, the Faculty, and the Department, and dissemination of knowledge to the general public by making available the Academic Faculty member's expertise and knowledge of the discipline.

The Department Chair supervises Faculty Members. Annually, Faculty Members prepare and submit a report of their university responsibilities to the Department Chair and the Dean. We offer a competitive



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market salary. For information about the responsibilities, salary, benefits, leaves, and related details, see the most recent collective agreement for academic faculty members.

About the Faculty of Engineering and the University of Alberta

The Faculty of Engineering aims to maintain its position among the top schools in North America. We will do this through innovation and excellence from faculty members and staff who value collaboration, interdisciplinary work, and an engaging and positive work culture. We are dedicated to building a better future for society by:

- 1. Building the future through people in a collaborative, cross-functional environment
- 2. Developing minds and hands with heart by taking a holistic approach to provide an exceptional student experience through education and enrichment that strives to develop the highest-calibre engineers: Those who process both technical acumen and emotional intelligence, expanding the traditional definition of "engineering."
- 3. Demonstrating the ever-expanding value of our contributions through community engagement, research impact, and value to society
- 4. Uniquely positioning the engineering field to help uplift the whole of humanity

The University of Alberta exists to inspire and ignite the human spirit in pursuit of a better tomorrow. Its work is rooted in its commitment to equity, diversity and inclusion, while honouring Indigenous identities, languages, cultures, and world views. As one of the world's top 100 teaching and research universities, the U of A ranks among the top 5 in Canada, providing a \$19.4 billion annual economic impact in Alberta alone. The U of A seeks to challenge, to change, and to always be Leading with Purpose. More than 44,000 students and 13,000 staff shape the U of A, with outstanding achievements in learning, research, creativity, innovation, and engagement across five campuses - including one rural and one francophone. The U of A attracts top talent in rigorous undergraduate, graduate, and professional programs in 17 faculties across three colleges and more than \$550 million in sponsored research revenue. The U of A has more than 300,000 alumni worldwide.

Working and Living in Edmonton

Benefits, Health, & Wellness

We offer a <u>health and wellness benefits package</u> that includes a health spending account, parental leave, and pension benefits. For Faculty members, some moving and relocation expenses may be reimbursed. Spouses/partners are offered employment services through the <u>University's</u>

Spousal/Partner Employment Program



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. In the Faculty of Engineering for spouses eligible to be academic faculty members, we encourage discussing with the Department Chair at the offer stage or during employment as we value minimizing long-distance separation of families whenever possible with consideration to budgets and staffing needs. The campus offers a medical clinic, and multiple childcare and housing options within steps of campus. Academic faculty members are offered parental and medical leave, retirement benefits, and healthcare benefits.

Living in Edmonton

Edmonton is home to over one million people and Alberta's capital. Edmonton offers a vibrant start-up and technology ecosystem, federal and provincial government offices, and the Corporate Offices of the provincial healthcare system. The city offers the amenities of a large urban centre while maintaining a friendly atmosphere. Several faculty members live in nearby neighbourhoods with a range of multifamily and single-family housing options within walking and biking distance of the University. Alberta is among Canada's top provincial school systems with several primary and secondary schools near campus. Edmonton is known internationally for its thriving arts and festival scene with one of North America's largest stretches of urban parkland, and top-ranked health care services.

Minimum Qualifications:

- Ph.D. in Electrical and/or Computer Engineering or a related field such as Mechanical Engineering, Mechatronics or Computer Science
- Experience effectively communicating the results of research within and outside of the academy, including publications in reputable, peer-reviewed journals and conference proceedings
- Licensure, progress towards licensure, or eligibility for licensure as a Professional Engineer or Licensee in Alberta is required through the Association of Professional Engineers and Geoscientists of Alberta (APEGA, https://www.apega.ca/). Licensure must be obtained within five years from the date of hire
- Ability to effectively develop, instruct, and engage learners in engineering curriculum
- Excellent written and verbal communication skills

The Following is Considered an Asset

- Industry experience in engineering, trades, sciences, and technology industries
- Experience with interdisciplinary and collaborative research projects as well as with managing large, multi-year research projects
- Experience working with industry and community partners for research projects



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- Team, lab, and facility management experience, including but not limited to safety, supervision, and procurement
- Teaching experience and training in teaching, lesson planning, and curriculum design
- Teaching, research, service, and volunteer work related to the role as well as community boards and organizations and outreach to and helping in underserved and underrepresented communities
- Grant application and financial management experience and training

How to Apply

Please ensure that your application shows clearly how your skills and experience meet the criteria above. To apply, please select the Apply Online icon below and submit the following:

- 1. Cover letter
- 2. Curriculum vitae including your research, teaching, and service experience related to the role and responsibilities as well as the qualifications above.
- 3. Research Plan that outlines main areas of current research and short- and long-term research goals (maximum 2 pages) and up to 3 recent peer-reviewed research publications
- 4. Teaching Dossier (Submit as an attachment under "Other") including
 - 1. Maximum 2-page teaching philosophy, and
 - 2. Evidence and potential for teaching effectiveness, such as related training, teaching assistantships, courses instructed, recent course evaluations, and example course outlines for courses you delivered as an instructor.
- 5. Equity, diversity, and inclusivity (EDI) statement that outlines the candidate's philosophy, experience, training, and future interests and goals in these areas related to research, teaching, and service. The statement can include (2 pages maximum; submit under "EDI Statement"):
 - 1. How you will build and retain a high-performing and diverse research team. Please include your plans for universal design and inclusivity for the research environment and the team, and for equitable opportunities for all members of the team to engage with the work being conducted and other opportunities that will advance their career goals.
 - How you will contribute to our culture of providing exceptional educational experiences that
 focus on learner engagement and inclusivity, universal design for learning, experiential and
 active learning while building engineering knowledge and skills as well as emotional
 intelligence, social mindedness, and ethics.
- 6. Members of selection committees will be aware of the principles of employment equity, fair selection, and the risks of bias. If, for any reason, you have taken a career break or have had an atypical career and wish to disclose this in your application, the selection committee will take this



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into account, recognizing that the quantity of your research may be reduced as a result.

Next Steps

- Applicants will be accepted until the position has been filled; however, our shortlisting process will begin in early December. The anticipated start date for this position would be July 1, 2025.
 University representatives will review application packages, and should the Hiring Committee advance your application, you will be contacted for an online pre-interview.
- Please note that applications with missing information or components will not be considered.

For applicants selected for interviews, three letters of reference will be requested. Applicants will be expected to contact the three referees and arrange to have them submit their letters of reference via email attachment. Details will be provided to those candidates.

To apply, please visit: https://apps.ualberta.ca/careers/posting/1629

The University of Alberta is committed to an equitable, diverse, and inclusive workforce. We welcome applications from all qualified persons. We encourage women; First Nations, Mtis and Inuit persons; members of visible minority groups; persons with disabilities; persons of any sexual orientation or gender identity and expression; and all those who may contribute to the further diversification of ideas and the University to apply.

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Contact Information

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

Contact



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