

Assistant Professor in Computing Hardware Engineering
University of Alberta

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Posted Oct. 28, 2024, set to expire Feb. 20, 2025

Job Title	Assistant Professor in Computing Hardware Engineering
Department	Electrical and Computer Engineering
Institution	University of Alberta Edmonton, Alberta
Date Posted	Oct. 28, 2024
Application Deadline	Open until filled
Position Start Date	Available immediately
Job Categories	Assistant Professor
Academic Field(s)	Computer Engineering
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Job Description	

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Assistant Professor in Computing Hardware Engineering

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The Department of Electrical and Computer Engineering in the [Faculty of Engineering](#) at the [University of Alberta](#) is seeking applications for two full-time tenure track Assistant Professor positions in **computer engineering**. Consideration may be given to those at the rank of Professor or Associate Professor.

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Applications are invited from candidates with a passion for computer engineering, with an emphasis on emerging and high-value areas such as hardware support for artificial intelligence (AI) and machine learning (ML), quantum systems, cybersecurity, high-performance computing, high-speed wireless/wireline communications, and Internet of Things (IoT). We are seeking candidates with research expertise in (1) general-purpose hardware such as accelerators for AI and ML, high-performance computing, low-power edge computing, quantum computing, cybersecurity, chiplets, and CPU, TPU, GPU, and FPGA systems; or (2) custom ASICs (e.g. Analog/Mixed-Signal/Digital Integrated Circuits) such as neuromorphic chips, high-speed wireless/wireline communication links (5G/6G and beyond, 100-400 GBPS links), ultra-low-power circuits for IoT, interface circuits for quantum computers, system-in-package, and advanced IC packaging technologies.

The University of Alberta's strategic plan (Shape: The University Strategic Plan 2023-2033) highlights expanding interdisciplinary research as a key initiative. Joining our department means collaboration opportunities with researchers and instructors across numerous departments at the University of Alberta. Some particularly common collaborations are with the Departments of Computing Science, Mechanical Engineering, and Physics, but many others are also possible. As a new faculty member, you will also have the opportunity to collaborate with researchers at University research centers such as the Alberta Machine Intelligence Institute (AMII), the Institute for Space Science, Exploration and Technology (ISSET), the Institute for Smart Augmentative and Restorative Technologies and Health Innovations (iSMART), and the Centre for Mathematics Science and Technology Education (CMASTE), among others.

The successful candidate will join a team of faculty members committed to an exceptional student experience. The Department has over 1000 undergraduate students across the electrical and computer programs that will grow in 2025 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, AlbertaSAT, and the 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 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 computer engineering, we welcome your application!

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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 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,

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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 possess 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 [health and wellness benefits package](#) 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 [University's Spousal/Partner Employment Program](#). 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.

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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 multi-family 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

1. Ph.D. in Electrical and/or Computer Engineering or a related field such as Computer Science
2. Experience effectively communicating the results of research within and outside of the academy, including publications in reputable, peer-reviewed journals and conference proceedings
3. 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.apenga.ca/>). Licensure must be obtained within five years from the date of hire
4. Ability to effectively develop, instruct, and engage learners in engineering curriculum
5. Excellent written and verbal communication skills

The Following are Considered an Asset

1. Industry experience in engineering, trades, sciences, and technology industries
2. Experience with interdisciplinary and collaborative research projects as well as with managing large, multi-year research projects
3. Experience working with industry and community partners for research projects
4. Team, lab, and facility management experience, including but not limited to safety, supervision, and procurement
5. Teaching experience and training in teaching, lesson planning, and curriculum design
6. 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
7. Grant application and financial management experience and training

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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.
 2. 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 trained on or familiar with 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 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 on December 1, 2024. The anticipated start date for these positions would be July 1, 2025. University representatives will review application packages, and should the Hiring Committee

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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 selected for interviews.

To apply, please visit: <https://apps.ualberta.ca/careers/posting/1631>

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

Electrical and Computer Engineering
University of Alberta