Call for Postdoctoral Fellows (Fixed-term Project Researcher) to work at AI Incubator Labs at WPI-IRCN, The University of Tokyo

The International Research Center for Neurointelligence (WPI-IRCN), based at the University of Tokyo Institutes for Advanced Study in Japan, is seeking post-doctoral research fellows who specialize in machine learning/artificial intelligence/statistics and/or computational/mathematical neuroscience and are extremely motivated and enthusiastic to generate neuro-inspired artificial intelligence (A.I.).

At IRCN, we focus on brain development and its disorders to inspire novel A.I. as well as its application toward disease prediction and prevention. Our Team Science approach has made breakthrough discoveries in five areas: Neuromodulation (reinforcement learning), Critical Period Mechanisms, Social Learning, Intrinsic Activity and Predictive Coding. We are now seeking exceptional candidates to integrate these findings into innovative A.I. This fusion of basic and clinical neuroscience with computational/mathematical approaches is actively supported by state-of-the-art core facilities in cellular and human imaging, data science and gene targeting tools.

IRCN was originally launched in October 2017 as a World Premier International Research Center Initiative (WPI) of the Ministry of Education, Culture, Sports, Science and Technology (MEXT). Through the WPI mechanism, IRCN established a research and administrative vision for an international ecosystem to attract the best scientists from around the world to Japan. IRCN accommodates and encourages diverse scientists from all countries to carry out novel, ambitious, cutting-edge research toward a value-added trans-disciplinary global impact. For further information about IRCN, see: https://ircn.jp/en/.

IRCN welcomes all qualified candidates, regardless of nationality or gender, and works positively to eliminate biases. Notably, IRCN has an extensive overseas research network, encourages and supports our candidates' close collaborations with them. Our institutional language is English; Japanese language skills are not required. Support for researchers to live and thrive in Japan is provided by our talented staff. Start-up support is provided during the initial period. Position details are provided below.

1	Title / Number of positions	Project Researcher / up to 5
2	Employment period	From June 1, 2025 to March 31, 2026. Starting date is negotiable
3	Renewable	The contract may be renewed. If renewed, it shall be on an annual basis. Renewal will be judged based on the budgetary situation, the progress of the work engaged in, remaining work at the end of the contract period, work performance, work attitude, health situation, and other factors. If renewed, the final date of the employment is March 31, 2027.
4	Probationary period	14 days from the date of hiring.
5	Place of work	"AI Incubator (see below)" at International Research Center for Neurointelligence, The University of Tokyo, Institutes for Advanced Study (7-3-1 Hongo Bunkyo-ku Tokyo, 113-0033 JAPAN) Scope of change: In principle, within the same center.
6	Job Description	IRCN has established an "AI Incubator (led by Prof. Kazuyuki Aihara)" within IRCN. The selected candidates will participate in one or more team science activities as a member of the "AI Incubator" to integrate breakthrough discoveries made through our Team Science approach into innovative neuro-inspired AI: (1) Neuromodulation/Reinforcement Learning (Haruo Kasai, Kazuyuki Aihara & Shin Ishii) (2) Critical Period Mechanisms (Takao Hensch, Kazuyuki Aihara, Yukiko Gotoh, Takamitsu Watanabe & Yasushi Okada) (3) Social Learning (Yukie Nagai, Kazuyuki Aihara, Takao Hensch, Shoji Takeuchi & Sho Tsuji) (4) Intrinsic Activity (Kenichi Ohki, Kazuyuki Aihara, Takamitsu Watanabe, Hideki Nakayama, Kiyoto Kasai, Zenas Chao, Takao Hensch & Gohei Tanaka) (5) Predictive Coding (Zenas Chao, Kenichi Ohki, Yukie Nagai, Kazuyuki Aihara, Kiyoto Kasai & Hirokazu Takahashi) Below is a list of potential projects.

		(a) Neuro-inspired AI using reservoir computing and mathematical engineering [Primary Supervisors: K. Aihara (PI), Gohei Tanaka (IRCN Affiliated PI / Nagoya Institute of Technology) and others] - e.g. Work on the theme of neuro-inspired AI using reservoir computing and mathematical engineering to deepen the understanding of neural network dynamics. - e.g. Contribute to critical period mechanisms, intrinsic activity and predictive coding team science by doing mathematical modeling. **(b) Neuro-inspired AI using reservoir computing and dynamical systems theory** [Primary Supervisors: K. Aihara (PI), Kohei Nakajima (IRCN Affiliated PI / Graduate School of Information Science and Technology, UTokyo) and others] - e.g. Work on the theme of neuro-inspired AI using reservoir computing and dynamical systems theory to deepen the understanding of brain dynamics. - e.g. Contribute to critical period mechanisms, intrinsic activity and predictive coding team science by doing mathematical modeling. **(c) Predictive coding in neuro-machine hybrid system** [Primary Supervisors: Z. Chao (PI), Hirokazu Takahashi (IRCN Affiliated PI / Graduate School of Information Science and Technology, UTokyo) and others] - e.g. Work on the theme of predictive coding using computational modeling and neurobiology (rodents or neuronal cultures) to deepen the understanding of information processing and goal-directed learning. - e.g. Contribute to predictive coding team activity by collaborating with team members to integrate modeling and neurobiological findings. **(d) AI-neuro hybrid modeling of neuromodulation** [Primary Supervisors: H. Kasai (PI), Shin Ishii (IRCN Affiliated PI / Kyoto University) and others] - e.g. Work on the theme of computational modeling/analysis of human/animal's behaviors using machine learning, including reinforcement learning to deepen the understanding of neural bases in normal or patient decision making. - e.g. Contribute to neuromodulation / reinforcement team science activity by doing computational modeling and analyses. **(e) Neuro-inspired AI using deep learning and brain analysis** [Primary Supervisors: K. Ohki (PI), Hideki Nakayama (IRCN Affiliated PI / Graduate School of Information Science and Techonology, UTokyo) and others] - e.g. Work on the theme of neuro-inspired AI using deep learning / LLM to deepen the understanding of visual / multimodal processing in computer and brain. - e.g. Contribute to intrinsic activity team activity by developing neuro-inspired AI from the viewpoint of machine learning and brain functions. **General Remarks** The selected candidates are strongly encouraged to participate in one or more above mentioned projects. Scope of change: The University may order employees to be reassigned to different positions, or order them to take up additional positions or to work on an external assignment.
7	Working Hours	Under the discretionary work system for specialized work, the employee is considered to work 7 hours and 45 minutes per day.
8	Holidays	Saturday and Sundays; Statutory public holidays of Japan; Year-end and New Year holidays(December 29 through January 3)

9	Paid Leaves	Annual paid leaves, refreshment leave, congratulatory or condolence leave, etc.
10	Salary & Benefits	● Salary: Annual salary system in accordance with the University of Tokyo Regulations, with a monthly salary of around ¥350,000 - ¥500,000 including Merit Based Allowances. (Salary is to be determined according to qualifications, ability, experience, etc.) ● Commuter allowance: If conditions apply, JPY55,000 per month at maximum ● No retirement benefits or bonuses
11	Available insurances	Eligible for MEXT Mutual Aid Association (health insurance and pension insurance), employment insurance, and workers' accident compensation insurance in accordance with laws and regulations. *MEXT: Japan's Ministry of Education, Culture, Sports, Science and Technology
12	Qualifications	Required: - Ph.D. or equivalent in a related field - Expert in computational neuroscience - Good experience in AI, mathematical science & engineering, or information science & engineering - Good communication skill in English
13	Application documents	(1) Cover letter in English: Please indicate which of the above projects you would like to work on as your primary project, and provide a clear explanation of your motivation. Applicants are also encouraged to describe how they can contribute to other projects. (2) Curriculum vitae in English Please download and use the University of Tokyo Standard Resume Format. (https://www.u-tokyo.ac.jp/en/about/jobs.html) (3) Publication list (4) Two letters of recommendation
14	Submission	Please submit your application to the following address by the application deadline specified in 15. Please combine the documents in ONE PDF file (10MB or smaller). Please name the file as "firstname_lastname_(the number of the project).pdf". (e.g. Taro_Todai_5.pdf) The application materials will not be returned. We will notify you via e-mail upon receipt of your application within 5 business days. Address: jinji.ircn#gs.mail.u-tokyo.ac.jp (Please replace # with @ before using this email address)
15	Application Deadline Selection Process	April 30, 2025, 17:00 (JST). Once a suitable candidate has been selected, the recruitment process will be closed. All applications will be screened, and only those qualified will be scheduled for an interview (on-site or via video). If your application passes the screening, you will be contacted by email for an interview.
16	Inquiries	Please refer to "14 Submission".
17	Recruiter Name	The University of Tokyo
18	Status of measures to prevent passive smoking	Smoking is prohibited on the premises (smoking areas are located outside)

19	Notices	(1) Submitted documents will not be returned. Personal information is handled carefully according to the Privacy Policy of the University of Tokyo, and will be used only for the job selection process. (2) Travel cost will not be paid in screening process. (3) For details on work conditions, please see the University of Tokyo Regulations on Conditions of Employment of Fixed-term Academic and Administrative Staff. （https://www.u-tokyo.ac.jp/en/about/rules_main.html） (4) The University of Tokyo promotes gender equality and actively encourages women to apply. (5) If you are personally in contract with foreign governmental bodies, corporations or universities, or you are in receipt of a large benefit (financial or any other form) from foreign governmental bodies during the period of your employment, the provisions of the Foreign Exchange and Foreign Trade Act (FEFTA) may prohibit or restrict the sharing of technology that are designated as controlled technology possibly making it difficult for you to fulfill your duties as an academic or administrative staff of the university as a result. Therefore, in such cases it is necessary to keep such contracts/benefits within the scope where it does not hinder the sharing of technologies necessary for your duties by the university.