

JOB VACANCY ANNOUNCEMENT

Senior Research Engineer (Data Processing System) at ALMA Project, National Astronomical Observatory of Japan (NAOJ)

The National Astronomical Observatory of Japan (NAOJ) announces a vacancy for a Senior Research Engineer position to lead the implementation of capabilities for the ALMA Total Power Array in the planned next-generation data processing system in collaboration with international partners of ALMA.

1. Job Title: Senior Research Engineer, one position
2. Division and Location: NAOJ ALMA Project, NAOJ, Mitaka, Tokyo 181-8588, Japan
3. Area of Expertise: Software, Radio Astronomy, and Interferometry
4. Job Description:

The National Astronomical Observatory of Japan (NAOJ) has been playing a leading role at the forefront of global astronomical research. ALMA is the largest (sub)mm-wave on-ground telescope and has been producing ground-breaking science since it became operative in 2011. In order to keep its high scientific productivity, ALMA will be upgraded towards addressing the updated scientific goals identified in the ALMA Development Roadmap.

We invite applications for one Senior Research Engineer who is based in Mitaka, at NAOJ Headquarters, and whose primary mission is to lead teams which perform maintenance and development of data processing software for ALMA.

ALMA observatory is responsible for the processing of observation data obtained with ALMA. Data processing is performed with the software, CASA and ALMA Science Pipeline (Pipeline), which have been developed by the international software development teams distributed in North America, Europe, and Japan. NAOJ is responsible for developing the capabilities to process single-dish observation data in CASA and Pipeline. The data processing software is expected to be unified and reimplemented as the next generation Data Processing System (ngDPS), as the observing capabilities of ALMA are significantly enhanced with the expansion of frequency range that can be observed simultaneously, leading to the increase in data size.

The successful candidate will be expected to:

- (1) Lead development, maintenance, and troubleshooting activities for single-dish data processing capabilities in CASA and Pipeline in the current ALMA system;
- (2) Contribute to the design of ngDPS and overall software design for the upgraded ALMA observing system;
- (3) Lead, manage, and develop single-dish data processing and analysis capabilities of the ngDPS;
- (4) Lead the implementation of the ngDPS in transition from the current to the upgraded ALMA system.

The tasks include negotiation and communication with the international CASA and Pipeline teams, as well as general project management of the software development team in NAOJ, with defining schedule and assignments, tracking progress, and mitigating risks. The successful

candidate is also expected to supervise staff in the teams to develop their technical skills.

To fulfill these responsibilities, strong technical expertise in software development and its process is required. Proficiency in a programming language, Python, is necessary. Expertise in high performance computing, e.g., parallel processing, is considered a valuable asset. Basic knowledge of radio telescopes and single dish radio observations, and experience in analyzing and verifying astronomical data obtained with radio telescopes are desirable. English proficiency is also necessary since the successful candidate will work in English-speaking teams at the NAOJ ALMA Computing Team and in collaboration with the ALMA partners in Chile, Europe, North America, Taiwan and Korea.

5. Terms of Appointment:

The successful candidate is expected to start the job as early as reasonably possible after accepting the job offer. The term of employment will continue up to the end of the Japanese academic year, in which the post-holder reaches NAOJ's mandatory retirement age of 65. The hired candidate will undergo a six-month probationary period upon commencement of employment.

6. Qualification Requirements:

- (1) Minimum Educational Requirement: Master's degree in astronomy, computer science or related fields;
- (2) To have a strong technical background in software development and data processing software for radio observation data;
- (3) To have experience in leading or managing a software development team;
- (4) To have basic knowledge of radio astronomy and processing of single-dish radio observation data (desirable);
- (5) To have good communication skills and sufficient English language proficiency to join, discuss and collaborate in English-speaking teams;
- (6) Strong interpersonal communication skills and the ability to work in a team with diverse cultural background will be considered important assets for this position.

7. Required Application Materials: (*To be prepared in English)

- (1) Cover letter;
- (2) Curriculum vitae;
- (3) Publications list (Separate refereed and non-refereed papers. SPIE can be included in refereed papers);
- (4) Summary of your past activities related to the duties for this position;
- (5) Your commitment and plan to fulfill the duties;
- (6) Your address (e-mail and phone) for prompt contact and the email address of your current supervisor or line manager; and
- (7) Two or more reference letters. Please ask your references to upload their letters directly using the URL indicated in 9.1.(2) before the application deadline. Applicants are responsible for ensuring that the letters are submitted before the application deadline.

8. Closing Date for Application: 2024-06-21, 12:00 (noon) (Japan Standard Time)

9. Application Instructions:

9.1 How to Submit an Application:

Applicants are required to apply via the NAOJ Nextcloud on the web.

- (1) Please access the following URL for registration:
<https://forms.office.com/r/vUrSS4WX64>
- (2) After you submit registration form, you will receive an email showing the URLs for
 - (a) uploading your application documents, and
 - (b) for your reference letters.
- (3) Please ask your references to upload their letters via the URL shown in (2)(b).
- (4) Please upload the application documents (from 7. (1) through (6) above) via the URL
(2)(a). These files must be in PDF format (max 50MB each, 100MB in total, at most 10 files).

9.2 Contacts:

- (1) If you have any question related to the job description, contact;
E-mail address: misato.fukagawa_AT_ao.ac.jp (replace _AT_ with @)
Misato Fukagawa, NAOJ ALMA Project Manager, NAOJ
Subject of e-mail: “Question on JD of Senior Research Engineer in NAOJ ALMA Project”
- (2) If you have any question related to the other items, contact;
E-mail address: job05-researchengineer_AT_ao.ac.jp (replace _AT_ with @)
Subject of e-mail: “Question on Application for Senior Research Engineer in NAOJ ALMA Project”

10. Notes for Applications:

- (1) Candidates selected in the final short list may be interviewed by the selection committee either via the internet or face-to-face. The expense for the interview will not be covered by NAOJ.
- (2) If the selection committee determines that there are no qualified candidates for this position, this announcement may be closed without any selections.

11. Working Conditions:

- (1) Work Type and Work Hours: The Discretionary Labor System for Professional Work shall be applied. (standard work hours: 38.75 hrs/week, from 8:30 to 17:15 with an hour intermission)
- (2) Holidays: Saturdays and Sundays, National Holidays, New Year holidays (December 29th to January 3rd), Annual paid leave, Summer holidays, Bereavement leave, etc.
- (3) Social Insurance: MEXT Mutual Aid Association (health insurance), Employees' Pension Insurance, Employment Insurance, Industrial Accident Compensation Insurance
- (4) Remuneration:
 - Salary: Annual salary shall be determined based on professional knowledge, skills, required education, and job experiences as per the NINS regulations (NINS, or the National Institutes of Natural Sciences, is an upper-level organization that manages NAOJ). Payments will be made monthly in 12 equal installments.
 - Allowances: Dependent allowance, residential allowance, commutation allowance, and other allowances will be paid to employees who meet the conditions outlined in the NINS regulations. An amount equivalent to the year-end allowance and diligence allowance will be included in the annual salary.
 - Salary Increment: Once a year in accordance with the performance review
 - Retirement Allowance: Provided
 - Travel and relocation: Eligible employees will be provided with a relocation travel package to NAOJ, subject to the travel regulations of NINS (details must be arranged with the administration office).

12. Miscellaneous

- The NAOJ Advisory Committee for Research and Management will make the final decision for the appointment.
- This position is subject to the NINS Employee Regulations. The annual salary schedule indicated in Table (2) of the Research-Education Employee Base Annual Salary shall be applied to this position.
- Policy for Equal Employment Opportunity: Abiding by the Equal Employment Opportunity Act for Men and Women, NAOJ is committed to realizing a society with gender equality. If two candidates are deemed equal in their performance evaluation, NAOJ will take positive action to employ women. For details, see <https://www2.nao.ac.jp/~open-info/gender-equality/en/>
- If you have taken a leave(s) for maternity, childcare, and family care, please indicate it in your curriculum vitae. We will take it into account when assessing your performance.
- Smoking is prohibited on the premises excluding designated outdoor smoking areas.
- Information submitted in your application documents will not be used for any purpose other than the selection process and for contacting you with necessary notices in connection with the selection. Once the selection process is complete, we will securely dispose of all application documents and personal information except those submitted by the successful candidate.

13. Recruiting Institution:

Inter-University Research Institute Corporation, National Institutes of Natural Sciences (NINS), National Astronomical Observatory of Japan (NAOJ)