

File No.:	6512202
Position No.:	00045179
Job Code:	Level I – 008676 Level II – 008677
RCUH Pay Range:	Level I – E25 Level II – E27
FLSA:	Exempt
EEO Cat.:	02C – Professional (Services)
WC Classification:	4511
Effective Date:	03/12/22 (update 02/02/23)

IRTF SOFTWARE ENGINEER I, II

Institute for Astronomy

- I. **SUMMARY OF POSITION:** Regular, Full-Time, RCUH Non-Civil Service position with the Institute for Astronomy (IfA), located in Honolulu, Hawai'i. Continuation of employment is dependent upon program/operational needs, satisfactory work performance, availability of funds, and compliance with applicable Federal/State laws.

SUMMARY OF DUTIES: As a Software Engineer for the NASA Infrared Telescope Facility (IRTF), primary responsibility is maintaining, monitoring, and modernizing the telescope control system (TCS) and related observatory software, including maintaining and writing software for remote observing, star catalogs, and updating observing target ephemerides. Secondary duties include software development for observing instrument data acquisition systems and instrument graphical user interface (GUI). This is a progression job beginning with an entry level (Level I). It will assume the employee to start at Level I (unless justified and qualified to start at a higher level). Through experience, demonstrated competence, and operational needs, may be promoted to a higher level. Availability and ability to perform duties independently is expected to increase with each level of progression.

II. **SCOPE OF POSITION:**

A. **Reports to:**

Principal Investigator/ IRTF Director	Dr. John Rayner
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B. **Supervises:**

Title	# of FTE(s)
Level I – None.	
Level II – IRTF Computer Systems Support Specialist	1

- C. **Budgetary and/or Fiscal Responsibilities (applicable for only positions responsible for budgeting, payroll or procurement):** None.

- D. **RCUH Human Resources or Financial Portal Access and Action Authorization Levels:** None.
- E. **Level of Interaction:** Works closely with research scientists and Principal Investigator (PI) to obtain thorough understanding of functional and technical requirements of requested software designs. Requires occasional inter-island travel. Work is performed with a wide latitude for independent professional judgment and initiative. (Level I) Works with the PI and IRTF Senior Engineer to complete software designs. (Level II) Expected to perform as Project Manager with responsibility shared with the PI and senior engineer for the project budget and schedule. Interacts and communicates (verbally, in written form or electronically) respectfully and professionally with supervisors, co-workers and others at all times.
- F. **Job Competencies:** The following are required competencies the employee must demonstrate to maintain satisfactory work performance:
1. **Accountability:** Ability to be relied upon to ensure that projects within areas of responsibility are completed in a timely manner. Ability to monitor programs and/or activities and take corrective action when necessary.
 2. **Analytical Thinking:** Ability to identify issues, obtain relevant information, relate and compare data from different sources, and identify alternative solutions.
 3. **Communication:** Ability to present information to individuals or groups; ability to deliver presentations suited to the characteristics and needs of the audience. Ability to convey information clearly and concisely to groups or individuals either verbally or in writing to ensure that they understand the information and the message. Ability to listen and respond appropriately to others.
 4. **Knowledge - Technical:** Possession of a designated level of technical skill or knowledge in a specific technical area(s) and the ability to keep up with current developments and trends in areas of expertise. May be acquired through academic, apprenticeship or on-the-job training or a combination of these.
 5. **Resource Management:** Ability to provide strategic oversight for resource management matters including allocation of staff and assignment of case responsibilities, and tactical support. Ability to monitor case activities on an ongoing basis to ensure that clients are efficiently and effectively represented.
 6. **Technical Support:** Ability to understand internal/external customer technologies and problem resolution techniques. Ability to communicate effectively with customers. Ability to listen to symptom descriptions; to analyze problems; to respond effectively and to provide constructive feedback to the client on problem resolution.

III. MAJOR DUTIES & RESPONSIBILITIES (See column instruction below):

IIIA = % time/effort

IIIB = Place X if job duty is an Essential Job Function

IIIC = Job duty number (**BOLD if Primary Duty**)

IIID = Narrative description of Job Duty (**BOLD if Primary Duty**)

This is a progression job, all new hires enter at Level I and will be promoted to Level II based on satisfactory work performance, demonstrated competence on job skills/requirements, and operational needs.

IIIA	IIIB	IIIC	IIID
% of Time	Essential Job Function	No.	Description of Major Duty. BOLD if Primary Duty.
Level I 50%	X	1	Maintains and monitors the performance of the telescope control system. Monitors the nightly performance of the TCS's accuracy of telescope pointing and telescope tracking (both sidereal and non-sidereal), Right Ascension (RA) and Declination (Dec) motor currents as a function of telescope pointing position and telescope instrument configuration (i.e. telescope balance). Runs performance diagnostics if the reported RA and Dec motor currents are too high. Works with IRTF electrical and mechanical engineers, and IRTF day crew, to identify and fix TCS performance problems and modify TCS control software as necessary. Acquires and updates telescope pointing maps.
Level II 35%			
Level II 30%	X	2	Acts as Project Manager and technical lead for the modernization of the TCS and related observatory software, and for the IRTF Data Archive.
Level I 15%	X	3	Maintains and updates software required for remote observing, star catalogs, and updating observing target ephemerides.
Level II 10%			
Level I 15%	X	4	Works with the other IRTF staff to maintain and upgrade software and hardware for the IRTF computer network, and maintain and catalog and the IRTF web and cloud-hosted documentation.
Level II 10%			
Level I 15%	X	5	Develops software for observing instrument data acquisition systems and instrument GUI.
Level II 10%			
Level I/II 5%	X	6	Stays abreast of new developments in observatory software, available products, attends workshops and national conferences.
		7	Performs other duties as assigned.

IV. PRIMARY QUALIFICATIONS:

	Qualification	Description
A	EDUCATION	Bachelor's Degree from an accredited four (4) year college or university in Computer Science, or closely related field.
B	EXPERIENCE	Progression job with minimum experience requirements for Level I, and combination of experience and demonstrated competence and abilities for Levels II, III, and Senior. It will assume the employee to start at Level I (unless justified and qualified to start at a higher level). (Level I) Two to four (2-4) years of experience in computer science including some experience in complex software environments such as an observatory with emphasis on Linux development. (Master's Degree from an accredited college or university in Computer Science or closely related field may substitute for one (1) year of experience). (Level II) Four to seven (4-7) years of progressively responsible experience in computer science, including one to two (1-2) years of experience in complex software environments such as an observatory, and interfacing software with electrical and mechanical systems or one to three (1-3) years of experience at Level I. (Master's Degree from an accredited college or university in Computer Science or closely related field may substitute for one (1) year of experience).
C	KNOWLEDGE	(Level I) Considerable knowledge of theories, principles, and practice of computer science. Considerable knowledge of software development, including C, Unix systems programming, proportional-integral-derivative (PID) motion controllers, GUI programming, and network programming. (Level II) Extensive knowledge of theories, principles, and practice of computer science. Extensive knowledge of software development including C, Unix systems programming, GUI programming, and network programming. Basic knowledge of Linux system administration. Considerable knowledge of ethernet-based input/output (IO) controllers. Basic understanding of observational astronomy, and telescope control and pointing.

D	ABILITIES & SKILLS	(Level I) Good interpersonal and communication skills. Ability to plan, direct, and implement complex systems and analysis programs. (Level II) Ability to plan, supervise, and review the work of technical and professional subordinates. (All levels) Demonstrated ability in establishing working relationships within team or crew. Ability to develop and deploy software and administer Linux servers or equivalent in a user interface. Must possess a valid driver's license (and if use of personal vehicle on the job is required, must also have valid personal driver's insurance equivalent to Hawai'i's No-Fault Driver's Insurance) and maintain throughout the duration of employment. Must be able to drive a 4-wheel drive vehicle with automatic transmission.
E	PHYSICAL/MEDICAL DEMANDS	<u>Post Offer/Employment Condition:</u> Must be able to occasionally work at 14,000 feet and pass a post offer high-altitude medical examination.
F	POLICY/REGULATORY REQUIREMENT	As a condition of employment, employee will be subject to all applicable RCUH policies and procedures and, as applicable, subject to University of Hawai'i's and/or business entity's policies and procedures. Violation of RCUH's, UH's, or business entity's policies and/or procedures or applicable State or Federal laws and/or regulations may lead to disciplinary action (including, but not limited to possible termination of employment, personal fines, civil and/or criminal penalties, etc.).

V. SECONDARY QUALIFICATIONS:

Master's Degree from an accredited college or university in Computer Science. Experience in an observatory or laboratory environment. Experience with astronomical software libraries and tools.

VI. **(UPDATES & RECLASSES ONLY) REVIEWED BY INCUMBENT OF POSITION:** This job description is a summary of job duties, responsibilities, and qualifications. I acknowledge that I have read and understand the changes to the job description for my position. I understand that I must contact my supervisor/manager immediately if I have any questions regarding the content of the job description.

Print Name/Signature of Employee

Date

Note: This sheet is attached to the job description. This page will be maintained with your personnel file as a copy of the official installation date of the job description.

CLASSIFICATION:

Exempt

Level I - PR-E25	SLOT		POINTS
KNOW HOW	GII2		400
	<u>SLOT</u>	-	<u>POINTS</u>
ACCOUNTABILITY	F(4)S		350
	<u>SLOT</u>	<u>Percent</u>	<u>POINTS</u>
PROBLEM SOLVING	F3	38%	152

Level II - PR-E27	SLOT		POINTS
KNOW HOW	GII2		528
	<u>SLOT</u>	-	<u>POINTS</u>
ACCOUNTABILITY	F(4)S		350
	<u>SLOT</u>	<u>Percent</u>	<u>POINTS</u>
PROBLEM SOLVING	F3	38%	201

ATTACHMENT 1

RCUH HR Staff: NS, SN

Bulletin Board Posting: 02/10/23
 RCUH Website: 02/10/23
 Hire Net Hawai'i: 02/10/23
 Honolulu Star Advertiser: 02/10/23
 Hawai'i Tribune Herald: 02/10/23
 West Hawai'i Today: 02/10/23
 Indeed: 02/10/23
 RealJobsHawaii: 02/10/23
 Glassdoor.com: 02/10/23
 Dice.com: 02/10/23

IRTF SOFTWARE ENGINEER I – ID# 223105.

CLOSING DATE: March 9, 2023. Applications received after this deadline may be considered only if the position is not filled or up to the date a selection has been approved by the RCUH (whichever comes first). INQUIRIES: John Rayner 956-9846 (Oahu).

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MONTHLY SALARY: Salary commensurate with qualifications.

DUTIES: As a Software Engineer for the NASA Infrared Telescope Facility (IRTF), primary responsibility is maintaining, monitoring, and modernizing the telescope control system (TCS) and related observatory software, including maintaining and writing software for remote observing, star catalogs, and updating observing target ephemerides. Secondary duties include software development for observing instrument data acquisition systems and instrument graphical user interface (GUI). This is a progression job beginning with an entry level (Level I). It will assume the employee to start at Level I (unless justified and qualified to start at a higher level). Through experience, demonstrated competence, and operational needs, may be promoted to a higher level. Availability and ability to perform duties independently is expected to increase with each level of progression.

PRIMARY QUALIFICATIONS:

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KNOWLEDGE	Considerable knowledge of theories, principles, and practice of computer science. Considerable knowledge of

	software development, including C, Unix systems programming, proportional-integral-derivative (PID) motion controllers, GUI programming, and network programming.
ABILITIES & SKILLS	Good interpersonal and communication skills. Ability to plan, direct, and implement complex systems and analysis programs. Demonstrated ability in establishing working relationships within team or crew. Ability to develop and deploy software and administer Linux servers or equivalent in a user interface. Must possess a valid driver's license (and if use of personal vehicle on the job is required, must also have valid personal driver's insurance equivalent to Hawai'i's No-Fault Driver's Insurance) and maintain throughout the duration of employment. Must be able to drive a 4-wheel drive vehicle with automatic transmission.
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SECONDARY QUALIFICATIONS:

Master's Degree from an accredited college or university in Computer Science. Experience in an observatory or laboratory environment. Experience with astronomical software libraries and tools.

APPLICATION REQUIREMENTS: Please go to www.rcuh.com and click on "Job Postings." You must submit the following documents online to be considered for the position: 1) Cover Letter, 2) Resume, 3) Supervisory References, 4) Copy of Degree(s)/Transcript(s)/Certificate(s). All online applications must be submitted/received by the closing date (11:59 P.M. Hawai'i Standard Time/RCUH receipt time) as stated on the job posting. If you do not have access to our system and the closing date is imminent, you may send additional documents to rcuh_recruitment@rcuh.com. If you have questions on the application process and/or need assistance, please call (808)956-7262 or (808)956-0872.

RCUH's mission is to support and enhance research, development and training in Hawai'i, with a focus on the University of Hawai'i.

We are an equal opportunity employer and all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity or expression, pregnancy, age, national origin, disability status, genetic information, protected veteran status, or any other characteristic protected by law.