## General Nature of Position

The Psychology Department at San José State University is involved in collaborative research efforts with civil service scientists from the Technology Development Directorate (TDD) Research Group at the NASA Ames Research Center in Mountain View, CA. The research is centered on several exciting new programs on future vertical lift (FVL) rotorcraft systems, as well as the Joint Tactical Aerial Resupply Vehicle (JTARV) and the Adaptive Digital Automatic Pilotage Technology (ADAPT) program. We seek a project associate who will work on these programs in conjunction with other researchers in the Technology Development Directorate group. In addition, we seek an associate who has the ability to establish an independent research program within the above area. This position will start on January 3, 2022.

## Essential Duties & Responsibilities

1. Design, evaluate, and optimize flight control systems for advanced vertical lift configurations including eVTOL.

2. Perform system identification to develop accurate models of advanced vertical lift configurations including eVTOL.

3. Support ADAPT program by investigating damage tolerant control allocation schemes for rotorcraft with redundant controls.

4. Support JTARV program by investigating flight controls for multi-rotor UAVs that lend themselves to integration with outer-loop autonomy algorithms for autonomous flight.

5. Conduct flight test experiments using the TDD RASCAL X aircraft to investigate novel control system concepts, high-speed handling qualities requirements, and high-speed MTE development.

6. Become familiar with TDD HeliUM modeling tool and support development of additional capabilities in HeliUM.
7. Support external system identification and flight control design projects.

8. Attend weekly group meetings and present research results.

9. Produce reports and present work to relevant audiences.

INTERPERSONAL CONTACTS
Reports to the Project Director. Interacts with the San José State University Research Foundation (SJSURF) research staff and civil service staff on a daily basis.

SUPERVISORY RESPONSIBILITIES
No supervisory responsibilities.

QUALIFICATIONS
Education and Experience
- PhD in Aerospace Engineering or related field required.
- Education in the following areas: rotorcraft flight dynamics and control; aircraft simulation; classical control (transfer functions, frequency responses, root locus); linear control theory; MATLAB.
- Experience in an applied research setting is highly desired.

Knowledge, Skills, Abilities Required
- Strong verbal and written communication skills.
- Ability to work both as a member of a team and independently as required.
- General knowledge of flight control, airspace operations, and fixed/rotary wing aircraft and UAS controls.
- Demonstrated ability to conduct independent research.
- Excellent understanding of rotorcraft flight dynamics modeling methods, including blade element theory, blade dynamics, inflow dynamics, and trim analysis.
- Excellent understanding of rotorcraft flight control design and handling qualities requirements, including explicit model following control system architecture, control allocation methods for over-actuated systems, and control reconfiguration for damage.
- Experience modeling and designing control systems for coaxial rotorcraft, including consideration for rotor tip clearance.
- Demonstrated strong competency in MATLAB, Simulink, CONDUIT, and CIFER.
- Experience with conducting design and peer reviews and technical meetings.

Physical Requirements
- Must be willing to travel domestically and internationally.
- Located at the NASA Ames Research Center. Therefore, this employee must meet security qualifications for entrance to the Center.
- Candidate must be a U.S. citizen or Permanent Resident.

Complexity of Duties
- Exercise independent judgment in the management and completion of a diverse set of tasks.
NOTE: This position description intends to describe the general nature and level of work being performed by people assigned to this job. It is not intended to include all duties and responsibilities. The order in which duties and responsibilities are listed is not significant.

BENEFITS
The San José State University Research Foundation (SJSURF) provides an excellent benefits package to benefited employees. The comprehensive benefit package includes:

a) Ten company subsidized CalPERS health insurance plans to choose from (employee contributions differ according to plan and level of coverage).
b) Employer paid dental and vision for both employee and eligible dependents.
c) Life, AD&D, LTD with supplemental coverage opportunities.
d) 13 paid federal & state holidays.
e) Retirement Plan: 403 (b) employee contribution plan component and a 403 (b) employer contribution component, which vests immediately.
f) Vacation hours accruals and separate sick hours accumulations.
g) Employee discounts.
h) Paid training and professional development conferences.

Please visit the Benefits & Compensation page on the SJSU Research Foundation website for more detailed information.

APPLICATION PROCEDURE
To apply for this position, an applicant must submit a formal application for employment, as well as a resume and a cover letter. The applicant may do this via e-mail. The formal employment application is located on the SJSURF website on the Forms page. Due to the COVID-19 health crisis, all candidates must submit their application materials to foundation-jobs@sjsu.edu.

Please address your formal application, your resume, and your letter of interest directly to:

San José State University Research Foundation
Attn: HR/Job Code: RA NASA
E-mail: Foundation-jobs@sjsu.edu

A background check (including a criminal records check) must be completed satisfactorily before any candidate can be offered a position with the SJSURF. Failure to satisfactorily complete the background check may affect the application status of applicants or continued employment of current SJSURF employees who apply for the position.

REASONABLE ACCOMMODATION
The San José State University Research Foundation (SJSURF) is committed to providing access, equal opportunity and reasonable accommodation for individuals with physical or mental disabilities in the employment, recruitment, examination, hiring and interviewing processes. If you are a job seeker with a physical or mental disability and require a reasonable accommodation to search, apply, or interview for a job opening or otherwise need a reasonable accommodation during the application and hiring process, please contact us at foundation-jobs@sjsu.edu. In the email message, please indicate your full name, phone number and the type of assistance required. You must not reveal the underlying medical reason for your needed reasonable accommodation or otherwise disclose confidential medical information.
ABOUT THE SJSU RESEARCH FOUNDATION

SJSURF employment is separate and distinct from San José State University or state of California employment. SJSURF employees are not employees of SJSU or of the state of California.

SJSURF is a non-profit auxiliary of San José State University. SJSURF is totally self-supported. The majority of the organization’s funding comes from the federal government, and other public and private entities. With annual revenues totaling over $65 million, programs managed through SJSURF cover a rich diversity of applied research, public services, and educational related activities.

SJSURF is an equal opportunity employer and does not discriminate on the basis of race, color, creed, gender, religion, marital status, registered domestic partner status, age, national origin, ancestry, physical or mental disability, medical condition, sex, genetic information, sexual orientation, military and veteran status or any other consideration made unlawful by federal, state, or local laws. It also prohibits unlawful discrimination based on the perception that anyone has any of those characteristics, or is associated with a person who has or is perceived as having any of those characteristics.