

University of California, San Diego
Campus Human Resources 0922
JOB DESCRIPTION
NAME CHARLES JAMES

PAYROLL TITLE PROGRAMMER/ANALYST IV

NAME OF SUPERVISOR Art Wolfe Director CASS Dept.
DEPARTMENT/UNIT CODE CASS/0424
WORKING TITLE COMPUTER RESOURCE MANAGER

EXTENSION/MAIL CODE 42688 / 0424
WORK LOCATION/% OF TIME SERF/RM 431/100%
POSITION OVERVIEW

Independently working with director, faculty, management, Principal Investigator's and user community. Plan, organize and direct the computing organization and activities for the CASS department. Responsible for the management of the department's computer resources by planning, organizing, and supervising the development of computer resources to support extramural and University funded projects. Select, train and supervise technical staff. Schedule work and establish their priorities, Manage and plan computer budgets.

SPECIAL CONDITIONS OF EMPLOYMENT

Travel required, several one to three week trips a year to support field operations. Extended hours requires work after hours or on weekends to support testing, equipment repairs, schedules, one to four hours each month on average.

TYPE OF SUPERVISION RECEIVED General Direction

EMPLOYEES DIRECTLY SUPERVISED

NAME	PAYROLL TITLE	PERCENT OF TIME	STATUS (Career Casual)
Paul Yeatman	Dev Tech I	100%	Career
Ron Quillin	Prin. Elec. Tech.	20%	Career
Matt Fischer	Lab Helper	100%	Casual

FUNCTIONS/TASKS

I. COMPUTER RESOURCE MANAGEMENT

A. These resources are comprised of a heterogeneous network of medium-sized group computer centers with client/server distributed processing systems including SUN's, VAX's, PC's and MAC's. Included also are the associated peripherals and communications equipment supporting the department's computer requirements.

1. Responsible for the department's medium-sized computer centers, their networking, system administration and all aspects of their operation

Examples:

- a. HEXTE: Sun Solaris Unix/based computer center with 3 servers supporting 14 Sun workstations, heterogeneous network of workstations, PC's and MACS. 20 users on average, 40 user accounts with web server, dial-in and cable modem support.
- b. BATSE: DEC/VAX/VMS server with 4 users on average, 16 user accounts.
- c. HEAR: Computer facility DEC alpha server with 8 users on average, 24 user accounts.
- d. CASS Business Office: Novell server with 6 Windows 95 workstations performing all business office operations.
- e. WINDOWS NT server: with > 30 Windows 3.1, 95 and NT machines used in general computing support and backups.

2. Long range planning and implementation of the budget for computing resources within group and department. Managing The financial requirements of the department's computer resources which includes the design and monitoring of cost, rate, billing and recharge functions of our computer resources to fund the salary of support staff and operations and managing the dollars for computer procurement, licensing, software, supplies and operation. Responsible for the planning, operations, design specification, marketing analysis, selection and

procurement of computing resources. Manage and support all aspects of computing and network operations, including budget, computer support staff, repair, maintenance and system administration.

Examples:

- a. Designed, developed and implemented the HEAR Recharge System for computing that generates income to pay for High Energy Astrophysics group computing resources and staff.
 - b. HEXTE experiment computer resources budget.
3. Represent the CASS Director, faculty, and P.I.'s in meetings with extramural agencies, University departments and corporations, on developmental plans, design, capabilities and implementation for CASS's computing resources. Represent department and group in discussions with other UCSD departments and outside organizations.
- Examples:
- a. Represented dept. on SERF building committee to design computer infrastructure in electrical, structural, communications.
 - b. Represented dept. business office in consultations with campus DARWIN project for smooth transition of operating ledger via Sybase servers to Department computers.
 - c. Represented high energy group in liaison with NASA for electrical GSE system for HEXTE integration at GSFC and launch at Kennedy Space Center.
 - d. Consulting and interacting with various UCSD and other institutions personnel to facilitate communication networks and computer project operations.
4. Computer system and network administration including the development, implementation, operation and maintenance of sophisticated computer applications and telecommunications networks and operating systems and the administration of integrated information systems, multiuser interaction, scheduling of systems and peripherals, problem analysis and solution.
5. Marketing analysis, vendor liaison, selection and procurement of computer systems, network equipment, software and supplies.
6. Responsible for the continuing conversion and operation of all the department's computer systems; local area network (LAN), connections to campus and to internet, web services, development of security systems, networks and computer communications.
7. Environmental control, i.e. power air conditioning, noise control, lab layout and allocation of space.

II. COMPUTER SYSTEM DESIGN

- A. Responsible for performing the design engineering of computer systems. These designs are used for instrumentation in the prelaunch checkout and post-launch data analysis of space flight data, data acquisition or marine biology investigation, space science balloon-borne operation systems and experimental laboratory requirements which involve:
 1. Applying theoretical and mathematical approaches to computer system design
 2. Conducting computer system performance analysis, prediction, calculation and design validation using analytical and simulation models.
 3. Designing computer controlled systems for checkout, test, data reduction and data analysis.
 4. Researching, planning, development and implementation of state-of-the art computer systems, communications networks, and computing services with current and long range impact on the group and CASS.
 5. Specifying system requirements: sizing, speed, flexibility, interfacing.
 6. Evaluating vendor products.
- B. Overall design and development responsibilities on group's satellite and balloon ground support computer hardware, system software, networking and system administration including equipment design and installation, and establishing engineering design criteria.

III. ESTABLISH ENGINEERING CRITERIA

- A. Responsible for establishing engineering criteria involving the design, development, assembly and test of computer systems, requiring:

1. Writing engineering reports relating to computer systems and equipment, describing effectiveness, reliability, configuration and cost to Principal Investigators and research personnel.
2. Determining feasibility of engineering designs relating to computer systems and equipment.
3. Preparing proposals and project plans.
4. Preparing documentation of system designs and test plans.

IV. ENGINEERING LIAISON AND COORDINATION

- A. Responsible for engineering liaison and coordination throughout construction and test of computing systems to the Principal Investigators and research personnel. Involves:
 1. Coordinating the construction and test of various computing systems and peripheral equipment.
 2. Designing, specifying, purchasing and coordinating logistics of computer equipment, test equipment, spare parts and supplies required to support computer systems and their design.
 3. Performing engineering liaison between Principal Investigators, shop personnel, vendors and extramural funding agencies.
 4. Procuring equipment, supplies and materials.
- B. Supervise and provide direction of software programmers, lab assistants and assembly persons in the software implementation, construction, and assembly of various computer components, interfaces, electronic modules and lab work, requiring:
 1. Establishing priorities and direction in implementation of software to support system modifications and developments.
 2. Directing assembly, construction and development of electronic modules.
 3. Providing supervision in maintaining laboratory in orderly manner, supplies, tools and equipment stored in proper places and keeping work areas clean.
 4. Interviewing, selection and hiring.

V. DETAIL DESIGN

- A. Perform detailed design of electronic circuitry for both analog and Digital functions.
- B. Design interface and controller boards to be used for adapting various peripheral equipment to computing systems which involves:
 1. Circuit design
 2. Parts selection
 3. Timing analysis
 4. Board layout
 5. Wire list generation

VI. COMPUTER MAINTENANCE

- A. Responsible for the oversight of the repair and maintenance of the group's computing resources comprised of SUNS, VAX'S, PC's and Mac's, their associated peripheral equipment and networks.
 1. Analyze and repair equipment problems.
 2. Develop periodic maintenance procedures and schedules.
 3. Perform maintenance such as adjusting, calibrating and replacement of parts and supplies.
 4. Procure supplies and material required for maintenance and operation.
 5. Update maintenance procedures and schedules as equipment is changed.

VII. TEST SUPPORT

- A. Under independent direction conduct the test of computer systems, instrument test systems or flight hardware, involving:
 1. Developing test specification, scheduling test facilities.
 2. Connection of test equipment.
 3. Operation of equipment.
 4. Record and analyze results.
 5. Evaluate performance.

VIII. LABORATORY MAINTENANCE

- A. Oversight of the maintenance and repair of laboratory test equipment. Insure that laboratory equipment is serviceable and in good working order. Test equipment including electronic measuring equipment (oscilloscopes, voltage and current meters), power supplies, signal generators, nucleonic analyzers, vacuum

systems, environmental chambers and various hand tools, requiring:

1. Maintaining equipment inventory.
2. Periodic inspection of equipment
3. Repair or provide for repair of damaged equipment.
4. Maintaining calibration.

SKILLS AND KNOWLEDGE

1. Knowledge of engineering, physics and mathematics sufficient to be able perform systems design and electronics design.
2. Ability to apply experience in computer systems to calculate system requirements, performance prediction, verification, and modeling of systems.
3. Skill to analyze and interpret scientific research objectives to calculate system requirements to meet these objectives.
4. Knowledge of computer and electronic engineering subject matter to accomplish system design goals.
5. Knowledge of computer-based equipment. Technical knowledge of computer hardware components and systems. Knowledge of various types of communication devices and computer equipment. The ability to design, operate, troubleshoot, maintain and repair this hardware.
6. Skill to write and read engineering reports, notes, schematics, skill to write and read engineering reports, notes, schematics, drawings, and procedures.
7. Knowledge of University Policy and Procedures concerning inventory, procurement, packing and shipping, and environment of lab space
8. Skill n operating laboratory test equipment, machinery, and tools
9. Ability to adjust work schedule after hours for off-site testing.
10. Knowledge of VMS, SOLARIS, UNIX, LINUX, Windows & Apple operating systems and their system administration.
10. Ability to interact with wide range of personnel involving computer related activities, including accounting and business office.
12. Knowledge of University Policy and Procedures concerning recharge systems, funding and financial requirements.
13. Knowledge of computer accounting and funding methods.
14. Knowledge of management principles.
15. Negotiating skills.