Richard R. Treffers Ph.D.
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Professional Experience
University of Arizona 1975-1976 postdoctoral Astronomer.
University of California at Berkeley 1976 - 1981 Assistant Development Engineer
University of California at Berkeley 1981-2001 Senior Development Engineer
Diablo Valley College 1999 – 2005 adjunct instructor
Consultant 1981-present

Skills
Programming - C++, Linux-device drivers, csh
Database creation and queries
Computer interfacing
System administration- Linux and PC
Image processing
Motor control
Optical ray tracing
Infrared imaging
Analog/digital electronics
Cryogenics
Machining
FAA – Private Pilot/ Instrument rating/ Advanced Ground Instructor

Consulting Experience
California Institute of Technology - Real time control of Hydraulics materials test bench
Berkshire Technologies, Oakland CA. - Development of software for noise temperature testing
of microwave amplifiers.   Design of cryogenic Dewars for microwave amplifiers.
NASA Ames Research - Telescope dome, slit and weather automation.
Conductus Corp. Sunnyvale.- Software development for microwave testing.
Private client, Sonoma CA – automatic telescope
Quinstar Technology, Torrance CA – Software development for microwave testing.
Western Kentucky University – 1.3 meter telescope retrofit
Dartmouth College – 1.3 meter telescope motor install
University of California Berkeley – programming and motor controller install
St. Paul's School – telescope control program overhaul
California Institute of Technology – Solar telescope renovation

Hardware Projects
Fourier Transform spectrometer for observations in the 10 and 20 micron infrared
InSb detector development
Fabry-Perot spectrometer for optical astronomical observations
Automatic telescopes and instruments for supernova searches (KAIT & Leuschner)
Rooftop radio telescope for 1.4 and 12 GHz astronomical observations
HgCdTe imaging camera for near infrared astronomical observations.
OSETI – optical SETI detector optical design and data acquisition

Telescope Control Systems at MDM and Lick Observatories
Coelostat control systems at Caltech Linde + Robinson

Software Projects
Image processing package
Automatic telescope scheduling package for Lick and the RCT observatory
Telescope control software for RCT, Lick and MDM observatories
Coelostat control software for Caltech
Optical ray tracing package

Education
A.B. Yale University 1969 - Departmental honors in Physics
Ph.D. University of California, Berkeley 1974 - Astronomy.

Selected Publications
Detection of molecular hydrogen quadrupole emission in the Orion Nebula.
Astrophysical Journal. Letters to the Editor, 15 July 1976, vol.207, (no.2, pt.2):L129-33.

A single etalon Fabry-Perot spectrometer for observations of nebulae at
visible and infrared wavelengths. Publications of the Astronomical Society of the Pacific, April-May 1981, vol.93, (no.552):247-52.

The Leuschner Observatory automated 30-inch telescope.Publications of the Astronomical Society of the Pacific, May 1985, vol.97,(no.591):446-50.

Automated search for supernova explosions (using CCD detector). Review of Scientific Instruments, July 1988, vol.59, (no.7):1021-30.

PCVISTA. A library of astronomical image-processing programs for the IBM PC.
Publications of the Astronomical Society of the Pacific, Aug. 1989, vol.101, (no.642):725-30.

The Berkeley Automatic Imaging Telescope. Publications of the Astronomical Society of the Pacific, Oct. 1993, vol.105, (no.692):1164-74.

A rooftop radio observatory: An undergraduate telescope system at the
University of California at Berkeley. American Journal of Physics, Sept. 1998, vol.66, (no.9):768-71.

An Infrared Camera for Leuschner Observatory and the Berkeley
Undergraduate Astronomy Lab"   Publications of the Astronomical Society of the Pacific, May 2001, vol.113:607-621.