



2023.11.21

JOB DESCRIPTION

Senior Control Systems Engineer

LOCATION

Carlsbad, California (with occasional visits to Austin, Texas and Berkeley, California)

IMPACT

Until now, high-energy particle accelerators have been the exclusive domain of countries and governmental organizations. Due to their large size and very high cost, only a few of them have been built and are currently in operation. While they have been producing many major scientific advances, they have not been used much beyond fundamental scientific inquiry. TAU Systems is positioned to bring high-energy particle accelerators to a multitude of users by reducing their cost from billions of dollars to tens of millions and by shrinking their size from several miles to a few tens of meters. TAU Systems harnesses the latest laser technology to make electrons surf on three-dimensional plasma waves and accelerate them to ultra-high energies. This revolutionary technology promises to greatly speed up breakthroughs and industrial applications in material science, biotech, and energy generation.

TAU Systems is growing and looking for a senior control systems engineer interested in developing a complete, state-of-the-art, cost effective, fully integrated control system that will be at the core of our laser wakefield accelerator systems. You will be responsible for choosing the overall architecture, setting the specifications, building up the requisite team, and overseeing the creation and implementation of our control systems that will be suitable for use in an industrial setting, i.e. by non-experts. In addition, we have ongoing collaborations with other institutions, and you may be called upon to help and consult on the best way to maximize our use of their existing control system implementations and data acquisition programs. You will develop and implement the first control system on a multi-terawatt laser and laser wakefield accelerator system located in Carlsbad, CA. This is an exciting opportunity to join early and create a system from the ground up.

RESPONSIBILITIES

- Lead the overall control systems efforts for TAU systems.
- Choose and develop the hardware and software control systems architecture for the TAU systems products.
- Oversee the design, construction, implementation, and commissioning of the control system for our first laser and laser wakefield accelerator system.



- Assemble a properly sized team of controls experts that will help in meeting all of our control systems needs.
- Work and consult with our external collaborators to help interface with and improve their control and data acquisitions systems.
- Collaborate with our data scientists, laser wakefield scientists, engineers, and theory and computational team, to develop an integrated database system that is ideally suited for our products and data acquisition systems.

REQUIRED QUALIFICATIONS

- Advanced degree in electrical engineering and/or computer science, or equivalent, with at least 5+ years of actual experience designing, building, and implementing advanced control systems.
- Demonstrated experience and expertise with Supervisory Control and Data Acquisition (SCADA) system and Distributed Control System (DCS) architectures as are typically used for large scientific and/or industrial control system installations.
- Expertise across a broad range of control systems and programming languages as they pertain to their use in control system applications.
- Strong background in hardware/software interfacing in a variety of applications.
- Ability to work closely in a team with other engineers, scientists, postdocs, graduate students, and technicians.
- Willingness to work on-site most of the time.
- Excellent verbal and written communication skills.

DESIRED ADDITIONAL SKILLS

- Experience in the use of TANGO (preferably), EPICS, or an equivalent software/hardware interface system broadly used and available throughout the world.
- Experience in requirements determination, costs, and time estimations for control systems.
- Experience with the controls aspects of large laser systems and/or particle accelerators.

ADDITIONAL INFORMATION

- This is a full-time appointment.
- TAU Systems offers a comprehensive compensation and benefit package with stock options, holidays and paid time off, medical, dental, vision, and life insurance and 401(k) retirement plan with company matching.
- Base annual salary range: \$150,000 to \$230,000
- TAU Systems is an Equal Opportunity Employer
- Send resume and cover letter to careers@tausystems.com.