SEATREC

Firmware/Electrical Production Engineer

Seatrec is seeking an entry to mid-level electrical or firmware engineer to support the production of our autonomous profiling floats. In this role you will be responsible for the firmware and electronics installation process for our floats, including but not limited to flashing, provisioning, configuration, installation, testing, and end-of-line verification. The role will collaborate with experienced electrical and firmware engineers to develop the automation required to scale our production capabilities. In addition to supporting production, you will help build out test infrastructure and validate new firmware and features on the bench prior to pushing into production. You will have hands-on responsibility in production, automation, and testing frameworks that operate on cutting-edge autonomous ocean platforms. Your work will have visible, real-world impact, and you'll gain deep experience across embedded systems, Linux, RTOS, and production pipelines.

About Seatrec

Seatrec designs and manufactures subsea drones that generate electricity from ocean temperature gradients. Our products empower defense and oceanographic researchers to extend mission durations, optimize data collection, and reduce operational costs. By enabling the integration of advanced sensors previously limited in endurance and functionality, such as hydrophones, we open new possibilities for ocean science. One of our floats recently deployed off the coast of Kona, Hawaii, has collected a record of more than 1,000 profiles. Seatrec's energy harvesting core technology was developed at NASA's Jet Propulsion Laboratory and spun out of the California Institute of Technology in 2016. Seatrec is headquartered in Vista, California. Visit us at seatrec.com.

Position Responsibilities

- Lead the firmware installation process for manufacturing, encompassing device flashing, provisioning, configuration, and end-of-line verification.
- Develop, maintain, and run the automation that drives production firmware workflows.
- Flash and provision all systems, including embedded controllers and Linux SBCs.
- Perform electrical production installation steps and testing, including circuit board testing and cable harness fabrication.
- Write and maintain clear production procedures and testing logs.
- Develop and maintain new and existing firmware and electrical test setups (Python, Bash, LabVIEW).
- Run production validation testing and drive failures to root cause.
- Test new firmware releases, features, and payload integration on the bench before they enter production or go to the field.
- Use hardware and software tools (multimeter, oscilloscope, logic analyzer, debugger) to troubleshoot and debug systems.
- Contribute to firmware and electrical design improvements as needs arise.
- Collaborate with team members and develop self-sufficiency in completing tasks.

Skills and Experience

- Experience working in fast-paced production environments with a strong attention to detail and a commitment to maintaining accurate, thorough documentation.
- Strong organizational skills with the ability to multitask, prioritize competing assignments, and consistently meet deadlines without compromising quality.
- Strong Python scripting skills, comfortable building automated test frameworks and production scripts.
- Ability to read and debug embedded C code.
- Familiarity with microcontroller architecture and RTOS concepts: interrupts, timers, serial buses, threading, and memory management.
- Comfortable working in Debian Linux or a similar Unix command line environment.
- Familiarity with, or willingness to learn, basic electrical skills such as reading schematics, soldering, cable fabrication, and save handling of circuit boards.
- Hands-on experience with hardware debugging using standard lab tools.
- Collaborate effectively with senior team members, leveraging their expertise to accelerate learning, improve technical proficiency, and support team objectives.
- Passionate about autonomous systems and ocean technology, motivated to learn and grow.

Location

Full-time, onsite position at Seatrec's headquarters and manufacturing facility in Vista, California.

What We Offer

- Competitive pay
- Health, dental, and vision insurance
- Tax-advantaged retirement plan through Simple IRA
- Paid Time Off (PTO)
- Opportunities to participate in ocean deployments and field tests, and see the units you built in action
- Cross-training opportunities in engineering, testing, and field operations
- Small team environment where your work directly impacts mission success

Equal Opportunity Employer

Seatrec is an equal opportunity employer. All qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age, disability, protected veteran status, or any other characteristic protected by law.

To apply for this position, please send your resume and cover letter to jobs@seatrec.com.