

## Systems Modeling and Controls Engineer

Location: Oakland, CA

Terms & benefits: Full time, available immediately

How to apply: Submit CV, cover letter and portfolio to [joincalwave@gmail.com](mailto:joincalwave@gmail.com)

Subject line: Controls Engineer

### Position Details:

CalWave's mission is to provide a solution to secure clean, affordable and reliable electricity and freshwater for coastal communities. Our team members are active learners who enjoy working on tough technology problems in massive markets and embody our values of humanity, excellence and creativity. The company is backed by several development contracts with the U.S. Department of Energy and committed investors.

CalWave is seeking a dynamic and innovative Modeling and Controls Engineer to further advance CalWave's proprietary and high-performance wave energy converter technology to multi-unit commercial scale deployments.

The preferred candidate should possess strong analytical and technical skills, with demonstrable ability to understand complex systems, identify both opportunities and constraints to control dynamic systems from a practical and optimality perspective. Experience in building plant models using Mathworks Simulink or similar for hardware and electronic applications is required. The preferred candidate would be experienced in optimization methods and routines.

The ideal candidate will also have experience in cross-functional coordination with technical disciplines involved in hardware design and Hardware-In-The-Loop testing. Additional knowledge in model-free controls such as extremum seeking control and reinforcement learning strategies is a plus.

The selected individual will work closely with CalWave engineers and CalWave's world class industry and R&D partners (including UC Berkeley, Sandia National Labs, NREL, and industrial partners) to support the optimization and refinement of simulation models and control strategies for CalWave's Wave Energy Converter and to support the team during implementation and testing of (digital twin) models and control algorithms on SCADA systems for drivetrain test beds and ocean going WEC devices.

## **Responsibilities**

- Become an integral part of the modeling and controls team at CalWave contributing during all design and execution phases from modeling and system identification to control development and hardware integration.
- Develop and optimize wave energy converter, drivetrain, and electrical numerical and analytic models.
- Conduct cost-performance tradeoff studies using practical control approaches and hardware specifications.
- Support model and controller deployment on real-time target systems for integration on drivetrain test rigs and wave energy converter SCADA systems.
- Support team to model control scenarios, define function requirements, and evaluate tradeoffs.

## **Qualification:**

- Minimum qualifications MS (or BS with relevant experience) in Mechanical Engineering, Automation and Controls Engineering, Computational Engineering, Electrical Engineering, or similar.
- 2+ years of experience in model based or adaptive control design or similar
- Ideally hands on experience in deploying control methods on real time targets/SCADA systems
- Experience with physics based modeling tools for control design such as Matlab Simulink or similar
- Strong problem solving and analytical skills
- Passionate team worker with self-starter and entrepreneurial spirit

## **Location & Benefits:**

Oakland, CA (Currently WFH, test rig work planned for 2022/2023). Full-time. Competitive salary and equity options depending on experience. A health care supplement is included. Dynamic and impactful work environment.

## **Equal Employment Opportunity:**

CalWave Power Technologies Inc. is an Equal Opportunity/Affirmative Action Employer. All qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, disability, age, or protected veteran status. In compliance with federal law, all persons hired will be required to verify identity and eligibility to work in the United States and to complete the required employment eligibility verification document form upon hire.

At CalWave, we are working toward a 100% renewable energy future for everyone in the world. We are committed to creating an inclusive environment for all our employees and are seeking to build a team that reflects the diversity of the people we hope to serve with our revolutionary products. CalWave is proud to be an equal opportunity employer.

## Company Background:

CalWave Power Technologies Inc. (CalWave) is developing a game-changing next generation and patent pending Wave Energy Converter (WEC) to harness the vastly available, predictable and stable energy from ocean waves to serve coastal communities. CalWave spun out from UC Berkeley, graduated from Cyclotron Road at the end of 2016 and was awarded runner-up in the DOE US Wave Energy Prize. In 2017, CalWave was awarded a multi-million open water demonstration contract by the US DOE. In 2019, CalWave received two additional multi-million dollar awards by DOE to [1\) build a commercial scale drive train in parallel to our open water demo](#) and [2\) design the next generation of its submerged pressure differential WEC.](#)

Wave power has the technically achievable potential to power 20-30% of US and EUs electricity needs. According to the US DOE the Wave Energy Technical Resource Total US is 898-1229 TWh/year (22-30% of demand).

Environmental impact and sustainability are a critical concern of CalWave. The 2018 State of Knowledge For Environmental Effects and the 2016 State of the Science report summarizes and places in context information about the environmental effects of marine energy systems, to the extent that the information is currently available.