

Job Title 1: PhD Student in Design, Optimization and Characterization for Smart, Self-Disinfecting, Thermal Microsurfaces

Location: National Technical University of Athens, School of Chemical Engineering, BioMEMS Lab

Starting Date: 01/01/2025

Job Description:

We are seeking a motivated PhD student to join an EU-funded research project focused on the development of self-disinfecting, smart surfaces to fight hospital-acquired infections. The project is part of the EU Horizon program and aims to improve public health by creating smart surfaces that automatically disinfect, reducing the spread of harmful pathogens in healthcare settings. This is a 12-month position with the possibility for extension based on performance and project needs.

Key Responsibilities:

- Conduct simulations to optimize the design of thermal, mechanical and electrical devices that enable effective self-disinfection.
- Collaborate with project partners to improve the design and ensure it meets the necessary engineering specifications.
- Perform experimental testing of prototypes, evaluating thermal, mechanical and electrical performance, including power consumption, response times, and disinfection efficiency.
- Analyze data and contribute to research publications and project reports, demonstrating the impact of these smart surfaces on reducing hospital-acquired infections.
- Present findings at project meetings, conferences, and in scientific publications.

Skills & Qualifications:

- Background in electrical/mechanical engineering, materials science, physics, or a related field.
- Experience with simulation tools such as COMSOL Multiphysics is highly desirable.
- Knowledge of thermal systems, electronics, or device physics.
- Strong data analysis skills and familiarity with experimental testing.
- Ability to work collaboratively in a multidisciplinary team.

Job Title 2: Postdoctoral Researcher – Performance Evaluation and Reliability Testing of Self-Disinfecting Surfaces

Location: National Technical University of Athens, School of Chemical Engineering, BioMEMS Lab

Duration: 12 months (with the possibility for extension), Starting Date: 01/01/2025

Job Description:

We are seeking a Postdoctoral Researcher to join an EU-funded research project that focuses on developing self-disinfecting smart surfaces to combat hospital-acquired infections. The role involves leading the performance evaluation and reliability testing of these antimicrobial, microfabricated surfaces to ensure they meet the demands of healthcare environments. This position is part of the EU Horizon program and offers the opportunity to contribute to the development of technology with significant public health benefits. The initial contract is for 12 months, with the possibility of extension based on project progress and individual performance.

Key Responsibilities:

- Lead experimental testing of smart surfaces, focusing on thermal, electrical, and antimicrobial performance metrics.
- Develop and execute reliability testing protocols, including cyclic thermal loading and environmental stress testing to ensure durability in healthcare environments.
- Analyze performance data to assess the effectiveness of the self-disinfection process and identify potential improvements.
- Collaborate with the project team to refine designs based on testing results and ensure the devices meet the safety and efficacy standards for hospital use.
- Prepare research publications and technical reports to communicate results with stakeholders and in scientific forums.

Skills & Qualifications:

- PhD in electrical/mechanical engineering, or a related field.
- Experience on microfabrication and mechanical design is desirable
- Experience in performance evaluation, reliability testing, and data analysis of advanced devices.
- Knowledge of antimicrobial technologies and healthcare-related standards (desirable).
- Strong experimental and analytical skills.
- Excellent communication skills and the ability to work effectively in a multidisciplinary, collaborative environment.

Job Title 3: Postdoctoral Researcher – PCB Design, Electronic Circuits, and Power Management for Smart, Self-Disinfecting Surfaces

Location: National Technical University of Athens, School of Chemical Engineering, BioMEMS Lab

Duration: 12 months (with the possibility for extension), Starting Date: 01/01/2025

Job Description:

We are looking for a Postdoctoral Researcher with expertise in PCB design, electronic circuits, and power management systems to join an EU-funded research project focused on developing self-disinfecting smart, microfabricated surfaces to combat hospital-acquired infections. The successful candidate will work on designing efficient circuit layouts and ensuring reliable power delivery and management for the smart surface prototypes. The position is part of the EU Horizon program and is for 12 months, with the possibility for extension based on performance and project requirements.

Key Responsibilities:

- Design and develop PCB layouts and electronic circuits to control heating elements, sensors, and other smart functionalities for self-disinfecting surfaces.
- Implement power management systems to ensure efficient and stable operation of the surfaces in healthcare environments.
- Collaborate with the team to integrate wireless communication modules (e.g., WiFi/Bluetooth) and microcontrollers for real-time monitoring and control.
- Work closely with partners to test and refine the electronics systems based on performance data and feedback from healthcare settings.
- Ensure compliance with safety and regulatory standards for electronic systems in medical or healthcare environments.
- Assist in system integration and field-testing in real-world healthcare environments, ensuring robust operation and user safety.

Skills & Qualifications:

- PhD in electrical engineering, electronics, or a related field.
- Proven experience in PCB design and electronic circuit design, with a focus on power management.
- Familiarity with microcontroller integration, wireless communication modules, and sensor systems.
- Experience with CAD tools for PCB design (e.g., Altium Designer, Eagle, or KiCAD).
- Knowledge of power supply systems, including low-power design and battery management.
- Ability to work in a multidisciplinary team, including collaboration with software developers and healthcare professionals.

How to Apply:

Interested candidates should send their CV, a cover letter, and contact details of two references to:

Prof. Nikos Chronis

School of Chemical Engineering – National Technical University of Athens

Email: chronis@chemeng.ntua.gr