



PhD Research Scholarship Opportunity Nanorobots for Cancer Detection, Diagnosis and Drug Delivery

Project Description

This 3.5-year PhD research scholarship is generously supported by the CSIRO Next Generation Graduates Program. Funding is aimed at solving real-world challenges with Artificial Intelligence (AI). NanoCube Health is an industry partner in one of the programs, “AI Enabled Advanced Materials Technology”, together with the Deakin University.

Pancreatic cancer is projected to become the second leading cause of cancer-related deaths by 2030. For over 40 years, survival rates have shown little improvement. Due to anatomical complexity, traditional methods fail to identify early-stage disease, and most often, pancreatic cancer is identified when it is at an advanced or metastasised stage, resulting in a typical life expectancy of 5-8 months from the point of diagnosis. This challenge is further compounded by the ineffectiveness of current treatments.

NanoCube Health is an early-stage, deep-tech medical technology startup developing potentially groundbreaking, minimally invasive nanorobotics for the early detection and treatment of pancreatic ductal adenocarcinoma, the most common type of pancreatic cancer. More than ever, nanorobots have great potential to redefine the approach we take to early detect and treat complex diseases like pancreatic cancer. Nanorobots offer the potential to both improve health outcomes and reduce the financial burden of disease.

The recipient of this prestigious scholarship will play a pivotal role in advancing the project to its final stage of design validation, leveraging the power of Artificial Intelligence and Machine Learning.

Responsibilities

- Conduct in-depth research review to build a strong foundation of knowledge in the field of nanorobotics, with a strong emphasis on consumer-centric, impact-driven medical technology design.
- Accelerate the discovery, optimisation and validation of novel reagents and chemical reaction pathways using AI and Machine Learning (ML). This includes collecting, analysing, and interpreting data using appropriate statistical or computational methods.
- Conduct experimental laboratory work to validate AI/ML predictions, and characterise chemical reactions using standard analytical techniques, ensuring alignment between computational insights and empirical results.
- Optimise the overall design at each stage of the project by identifying and addressing design flaws, evaluating different design iterations, validating design choices and ensuring the final design meets the desired specifications and objectives.
- Work closely with a range of stakeholders both at Deakin University and with external research and industry partners including RMIT University, University of Melbourne, NanoCube Health and CSIRO.
- Contribute to overall project management, including timeline planning, effective communication and coordination with team members, risk assessment and management, resource management, and ensuring the successful execution of the research project to an exemplary standard in collaboration with the research team and industry partners.

About YOU

We are looking for a talented PhD researcher with grit, integrity and a passion for making a difference in the lives of people with pancreatic cancer.

You will have:

- Australian citizenship or residency in accordance with funding requirements
- A bachelor's degree with Honours OR master's degree in biomedical/chemical engineering, bioinformatics or a related field
- Strong written and verbal communication skills, including strong collaboration skills
- Exceptional analytical and problem-solving abilities
- Excellent time management and organisational abilities, including the ability to be self-motivated and to work autonomously
- Ability to ensure confidential and sensitive information is managed discreetly and securely.

You may have:

- Qualification in computer science and/or machine learning
- Experience in machine learning, computational materials science including first principles density functional theory, data analytics/modelling or similar
- Advanced proficiency with Python.

Please note that this PhD researcher position requires travel to Deakin and partner university campuses located in both metropolitan Melbourne and Geelong.

NanoCube Health is committed to creating a diverse and inclusive workplace we believe that a diverse team drives greater creativity, innovation, and success. We welcome applications from people from various backgrounds including First Nations people, women, members of the LGBTIQ+ community and people with disabilities.

Find Out More and Apply

More information about the CSIRO Next Generation Graduates Program:

<https://www.csiro.au/en/work-with-us/funding-programs/funding/Next-Generation-Graduates-Programs>

Stipend details: <https://www.csiro.au/en/work-with-us/funding-programs/funding/next-generation-graduates-programs/nextgen-scholarship-information>

More information about NanoCube Health: www.nanocube.health

To apply, please send a cover letter addressing the Key Selection Criteria and your CV to Dr Shawn Goussous at shawn.goussous@nanocube.health