

## TO WHOSOEVER IT MAY CONCERN

Looking for inspiration one late night after an unfavorable experimental run at the laboratory, as I perused through my chronological library, created out of habit, of projects, advances in research and so forth, I specifically recall opening a file from my grade VII science project speech about nano-robots for drug delivery and cancer treatment. From the perspective of a wonderstruck teenager about the future of science, I remember that this indeed was the beginning that gave me sufficient drive to pursue a career in scientific research.

My education supported me, Sean O Mathew, to become a research engineer. With two first-class honor degree's in chemical engineering, I decided to pursue my ambition to be a part of medical science research after I came across the remarkable success story of Prof. Dr. R K Jain, a chemical engineer, who built new frontiers in tumor biology. When interviewed about how a chemical engineer can contribute in medicine, to quote his inspiring words, he said: "Think differently!"

The unique second master program that I currently pursue (**Erasmus Mundus Master of Nanosciences & Nanotechnology Specialization: Biophysics**) in collaboration with two prestigious universities (**KU Leuven, Belgium & TU Dresden, Germany**) further emphasizes the significance of interdisciplinary knowledge in research. I can proudly state that I am amongst the few students who have been selected and trained amidst engineers, scientists and clinicians, thereby, opening access to a panorama of insights & knowledge.

A glance through my transcripts would give an idea on the kaleidoscope of coursework I have covered. Aside from the theoretical background in transport phenomena (**CH0501**) with concepts of differential math(**MA0501**) that I have been equipped with through engineering, unique science coursework which dealt with experimental/imaging techniques and diverse medical technology in subjects like Nanostructured BioMacromolecules (**H06D3A**), Artificial Organs and Tissue engineering (**H03J8A**), Human System Physiology(**H03I4B**) (to name a few) essentially provide me a thread of options to pursue research in. Additionally, I hope this would grant me an edge to bring out of the box solutions wherever presumed fit.

As a chemical research engineer, I specialized in material sciences. During my second year of Masters in chemical engineering, as an ambitious research student, I wanted to weave a strong opening into research. Thoughtfully, I chose to join the research lab facility at **CSIR-CLRI** (a government aided research institute), Adyar, Tamil Nadu. I was privileged to be simultaneously trained and supervised by the unique leadership of Dr. A Sivasamy, a chemist and Dr. C L Rai, an engineering doctorate. The research tested the potential of visible light photocatalytic nanomaterials for the treatment of tannery wastewater. Challenging as it was, the strenuous days of brainstorming and experiments helped me visualize the professional space in scientific research. Be it grant writing, or discussion sessions with scientists or just repeated lab experiments with favorable/unfavorable outcomes, every day was truly a critical, yet fine experience. We further published our work in the International Journal of Scientific & Engineering Research (IJSER).

My successful performance at the project graced me with a Ph.D. position (Environmental Nanotechnology) at Queensland University of Technology, Australia. I graciously declined the Ph.D. offer for the current program that I pursue, with a focused intention to prepare a path for a career in biomedical sciences. Being one of the most crucial choices I made in the recent past, it has indeed been an enriching one.

Regarding my current mind space in medical research, in my opinion, biomaterials for regenerative medicine, is where my passion lies. This could be easily assumed as a convenient choice for a material science engineer, however, I assure, is not out of impulse. Exploration at my current thesis project with the Carsten Werner research group in collaboration with **Max-Bergmann Center for Biomaterials (MBC)** and **Leibniz Institute for Biofunctional Polymers (IPFDD)** has influenced my decision to pursue. The research focus is to develop biohybrid interpenetrating network cryogels that mimic extracellular matrix for tissue engineering applications. By the end of the project, I hope to explore enough to make an addition to my area of expertise.

Academically, for the most part, my work is evident in my scores. The first year of my current program, however, was rather different from my anticipation. The education system, evaluation criteria and diverse interdisciplinary depth required for exemplary grades were disparate from my background. I consider this to be no kind of setback. My level of effort and approach was as sincere, yet, had to be adapted. To consider myself, a student with a natural talent would be quite elitist. Whatever it is I could not achieve by talent, I perfected with practice and discipline. With this attempt, I was still able to achieve the desired grade wherever applicable and for others, I am still continuing to work with a room for improvement.

Contemplating an inspiring lecture in the course Chemistry at Nanoscale (**H06A6A**); I came across the research about bio-polymeric delivery vehicles for ocular therapeutics, eventually leading to the **Advanced Biomaterials Lab (ABiL)** research website at **Queens University**. Personally, the study instilled my passion in the field and even pushed me to choose the current project that I am a part of. To corroborate further, I was rather excited to read about the research of certain group leaders like **Prof. Dr. Brian G. Amsden, Prof. Dr. Lindsay Fitzpatrick, Prof. Dr. Laura Wells** and their unconventional approaches in the field of biomaterials for regenerative medicine. Their motivated collaboration along with the contribution of other multidisciplinary investigators has produced an entire department focused on various domains in this research. With an obstinate determination to explore further in this line of work, a **Ph.D.**, under this unique leadership and team, would enable me to venture out theoretically into various subject domains wherever applicable, as well as, participate in the state of the art research within the faculty.

As a scientific research graduate, I am ambitious to destroy my demons and build an era of possibilities through the smallest advances I intend to contribute to. I am no superhero, yet, I believe I create my own reality. Hellen Keller rightly quoted: "The only thing worse than being blind is sight without vision." My aspiration in research is far more than what could be presumed as enthusiasm or strive for excellence. I sincerely hope, you can see what I see. Earnestly looking forward to becoming an integral part of a dream team.

Sincerely,  
**SEAN O MATHEW**