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As a Systems Biologist, I am mainly interested in developing and applying mathematical concepts and computational tools to gain better understanding of complex biological systems and processes. I joined De La Salle University (DLSU) after the completion of my Doctorate degree in Systems Biology/Medicine under Olaf Wolkenhauer at Rostock University, Germany and Thomas E. Willnow at Max-Delbrueck Center for Molecular Medicine in Berlin-Buch, Germany.

When my grandmother had been diagnosed with Alzheimer's disease (AD), I felt truly sad about her condition. I started reading articles about AD, wanting to learn more about it and to know how I could be of help to her. Serendipitously, I got the opportunity to study for my Ph.D. dissertation the influence of the receptor SORLA in the amyloidogenic processing of AD. By means of stability analysis, my colleagues and I were also able to analyze the temporal behavior

of a mathematical model that described the mechanisms of the AD-associated Amyloid precursor protein.

My most recent projects related to AD include establishing models that seek to explain relationships between Type 2 diabetes (T2D) and AD, and expounding how ketone bodies can be utilized by extrahepatic organs like the brain.

On a related note, I have become interested in disease-disease associations. We apply bioinformatics and machine-learning approaches to study and discover the patterns in the topological structures of the disease networks, and identify biomarkers associated with particular diseases. We believe that understanding how different diseases are related to one another based on their shared pathways could provide new insights into disease etiology and classification.

Recently, I have been doing collaborative work with Dr. Eduardo Mendoza -- the father of Systems (Mathematical & Computational) Biology in the Philippines -- on Chemical Reaction Network Theory (CRNT), based on which several journal articles have been accepted for publication. Our collaborative work focuses on identifying topological properties of the chemical reaction network using Mathematics.