

DEDICATION

This thesis is lovingly dedicated to my parents whose unwavering support, encouragement, and sacrifices have made this journey possible. Your belief in me has been my greatest strength.

I also dedicate this work to my beloved grandmother, whose wisdom, love, and endless prayers have been a source of inspiration and guidance throughout my life.

Finally, I dedicate this thesis to all the students of informatics around the world. May this research contribute meaningfully to the field of Computer Science and inspire others to pursue knowledge and innovation.