

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

SUDAN UNIVERSITY OF SCIENCE & TECHNOLOGY

COLLEGE OF GRADUATE STUDIES

DEPARTMENT OF SURVEYING ENGINEERING

**DEVELOPMENT OF MATHEMATICAL MODELS FOR
DENSIFICATION OF ORTHOMETRIC HEIGHTS**

استحداث نماذج رياضية لتكثيف الارتفاعات الأورثومترية

Thesis submitted in fulfillment of the requirements for the degree of Doctor
of Philosophy

BY

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

(مُحَمَّدٌ رَسُولُ اللَّهِ وَالَّذِينَ مَعَهُ أَشِدَّاءُ عَلَى الْكُفَّارِ رُحَمَاءُ بَيْنَهُمْ تَرَاهُمْ رُكَّعًا سُجَّدًا يَبْتَغُونَ فَضْلًا مِنَ اللَّهِ وَرِضْوَانًا سِيَّمَاهُمْ فِي وُجُوهِهِمْ مِنْ أَثَرِ السُّجُودِ ذَلِكَ مَثَلُهُمْ فِي التَّوْرَةِ وَمَثَلُهُمْ فِي الْإِنْجِيلِ كَزَرْعٍ أَخْرَجَ شَطْأَهُ فَآزَرَهُ فَاسْتَغْلَظَ فَاسْتَوَى عَلَى سُوقِهِ يُعْجِبُ الزُّرَّاعَ لِيغِيظَ بِهِمُ الْكُفَّارَ وَعَدَّ اللَّهُ الَّذِينَ آمَنُوا وَعَمِلُوا الصَّالِحَاتِ مِنْهُمْ مَغْفِرَةً وَأَجْرًا عَظِيمًا) (29)(الفتح)

In the name of ALLAH, the most Gracious, the most Merciful

(Muhammad is the Messenger of ALLAH. And those who are with him are hard against the disbelievers but tender among themselves. Thou seest them bowing and prostrating themselves in Prayer, seeking ALLAH's grace and pleasure. Their marks are upon their faces, being the traces of prostrations. This is their description in the Torah. And their description in the Gospel is like unto a seed-produce that sends forth its sprout, then makes it strong; it then becomes stout, and stands firm on its stem, delighting the sowers - That HE may cause the disbelievers to boil with rage at the sight of them. ALLAH has promised, unto those of them, who believe and do good works, forgiveness and a great reward).

DEDICATION

To the soul of my Parents

To my son Mohammed

To my daughters Dalia, Rania & Roa.

To my Wife

To the Surveyors