

**ACCURACY QUANTIFICATION OF DEFORMABLE
IMAGE REGISTRATION ON MEGAVOLTAGE
COMPUTED TOMOGRAPHY IMAGES FOR
NASOPHARYNGEAL CARCINOMA
ADAPTIVE RADIOTHERAPY
APPLICATIONS**

WANNAPHA NOBNOP

**DOCTOR OF PHILOSOPHY
IN BIOMEDICAL SCIENCE**

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**GRADUATE SCHOOL
CHIANG MAI UNIVERSITY**

JULY 2017

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**A THESIS SUBMITTED TO CHIANG MAI UNIVERSITY IN PARTIAL
FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY
IN BOIMEDICAL SCIENCE**

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THIS THESIS HAS BEEN APPROVED TO BE A PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY
IN BIOMEDICAL SCIENCE

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*This thesis is dedicated to my beloved family.
For their endless love, support and encouragement*



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