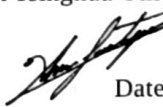# Application Form for Thesis Oral Defense

Tsinghua University

English name	SANTOYO ALUM ANUAR	Gender		Male	Date of birth	19941020
Chinese name	安武	Student number		2022280136	Nationality	Mexico

School/Department		机械系			Time of enrollment	202209

Information on your bachelor's degree: Graduation date, university/college,major	202111Technical University Berlin（TUB） 柏林工业大学（T 获学士学位					

Name of discipline / professional degree category	Mechanical Engineering		Code of discipline / professional degree category	0802	Schooling type	Full-time(√) Part-time( )

Supervisor	Name	张云	Title	Research associate professor	Employer	Department of Mechanical Engineering
Co-supervisor	Name		Title		Employer	

Title of the thesis	基于进化算法的蝙蝠机器人控制参数优化

Brief introduction on innovations for degree application. (Thesis-related innovations should be listed in the format of references. You can attach separate pages if space is lacking.)

In this thesis, we were able to develop a system that allows robots (in our specific case the Batbot) to optimize their parameters to a predefined optimal using the evolutionary algorithm Covariance Matrix Adaptation. With this new system we trained the Batbot to find optimal controlling strategies during flight, remarkable results were seen when the Batbot optimal movement algorithm resembled the ones of real bats, which proves the efficacy of the mechanical design and of the optimization system. This system could be applied to other robots that face the problematic of complex simulations environments, where the training is more efficient in the realm of reality.

I hereby apply for the Master's degree thesis defense at Tsinghua University.

Signature of Applicant: *[signature]* Date: 2024- 05 - 16

Comment of the supervisor:

Signature of Supervisor: *Zhang Yun* Date: 2024- 05 -16

Review of the Department Office:

Signature of Director: 温鹏 (Stamp)

Date: 2024 5.

清华大学
机械工程系
研究生科