NANYANG TECHNOLOGICAL UNIVERSITY SINGAPORE | Graduate College

Joint PhD Program Description

The description for the Joint PhD program will be posted online as a sub-page to Joint/Dual PhD Programmes | Graduate College | NTU Singapore.

Name of Partner University	Technische Universität Graz
Country	Austria
Year of JPP Establishment	2011
Program	☒ Joint Degree ☐ Joint Supervision
Description of the Program (150-250 words)	The joint PhD programme between Nanyang Technological University and Technische Universität Graz covers the following main areas of focus (not limited to): Human-Computer Interaction, Brain-Computer Interfaces, Computer Vision, Visual Analytics, Medical Computing, Artificial Intelligence, etc.
Disciplines	Computer science and engineering
PMC Names and Emails	NTU: • Prof Lin Weisi (wslin@ntu.edu.sg) • Prof Guan Cuntai (CTGuan@ntu.edu.sg) TU Graz: • Prof Dieter Fellner (dieter.fellner@igd.fraunhofer.de) • Prof Gernot Mueller-Putz (gernot-mueller@tugraz.at)

Joint Projects

Home University	Nanyang Technological University	
Supervisors	**Home**	**Partner**
Name	Guan Cuntai	Gernot Mueller-Putz
School	School of Computer Science and Engineering	Institute of Neural Engineering
Email	ctguan@ntu.edu.sg	gernot-mueller@tugraz.at
Website	https://personal.ntu.edu.sg/ctguan	https://www.tugraz.at/institute/ine/people/gernot-mueller-putz
Project Title	**Brain-Computer Interface Algorithms and Applications**	
Project Description (200-300 words)	The research topics will be centred around Brain-Computer Interfaces for clinical applications in either spinal cord injury or stroke. Following research topics are suggested (but not limited to): deep learning algorithms in BCI, transfer from healthy to patients, motor decoding, BCI systems for stroke/brain injury, etc.	
Program/Center Website(s)	NA	
Additional Information (e.g., files with project details)	NA	

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Home University	Nanyang Technological University	
Supervisors	**Home**	**Partner**
Name	TAN Rui	Olga SAUKH
School	Computer Science and Engineering	Institute of Technical Informatics
Email	tanrui@ntu.edu.sg	saukh@tugraz.at
Website	https://personal.ntu.edu.sg/tanrui/	http://www.olgasaukh.com/
Project Title	**Generative AI for Adaptive AIoT**	
Project Description (200-300 words)	Generative artificial intelligence (AI) has attracted much attention and showed great potentials for applications involving human-perceptible multimedia data (e.g., text and images). Its adaptability to the prompts sheds new lights on addressing various adaptation problems faced by artificial intelligence of things (AIoT). For instance, the perception functions of AIoT should adapt to the context. This project will study building generative AI that produce AIoT perception functions based on the sensed meta information, in specific applications like acoustic localization, continuous human activity recognition, etc.	
Program/Center Website(s)	NA	
Additional Information (e.g., files with project details)	NA	

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Joint Projects

Home University	Nanyang Technological University	
Supervisors	**Home**	**Partner**
Name	Zheng Jianmin	Ursula Augsdorfer
School	School of Computer Science and Engineering	Institute for Computer Graphics and Knowledge Visualisation
Email	asjmzheng@ntu.edu.sg	u.augsdorfer@cgv.tugraz.at
Website	https://personal.ntu.edu.sg/asjmzheng/	http://www.cgv.tugraz.at/augsdorfer
Project Title	**AI Meets Geometry**	
Project Description (200-300 words)	Artificial Intelligence and deep learning have achieved remarkable success in various domains including computer vision and natural language processing. They have also proven to be highly valuable in other fields such as 3D graphics and geometric modelling. This project investigates relationship between AI and geometric modelling & processing. The study delves into examples of new geometric processing algorithms and how deep learning algorithms can be incorporated to generate, analyze and process 3D digital models. To better understand the present dynamics between geometric modelling and AI, the research will analyze typical deep learning models from a geometric perspective, while also examining traditional geometry algorithms through the lens of learning. The project then focuses on specific geometric processing problems, selecting one or two for in-depth exploration. The objective is to develop intelligent geometric processing algorithms, leveraging principles of artificial intelligence or frameworks of deep learning. Examples of potential geometric processing problems include surface reconstruction, remeshing, point cloud segmentation, subdivision surfaces, and 3D shape parsing, among others. The overarching goal is to enhance the intelligence of geometric processes, empowering them to adeptly handle more intricate scenarios.	
Program/Center Website(s)	NA	
Additional Information (e.g., files with project details)	NA	