



完成人合作关系说明

本人为本项目《服饰文化遗产数字化保护关键技术研究及应用》第一完成人刘凯旋。自 2017 年起，项目组各完成人围绕服饰文化遗产数字化采集、三维人体建模、人体姿态识别、服饰数字资源应用开展联合研究，西安工程大学、武汉纺织大学、苏州大学、上海信玺信息科技有限公司多方人员长期协同攻关，团队成员之间形成共同获奖、论文合著、共同知识产权等多种合作关系。

张俊杰、洪岩、袁桦、张璐、周顺木子等项目完成人自项目启动即参与研究工作。其中，我与张俊杰、张璐、周顺木子等人共同完成本项目整体研发工作，共同取得陕西高等学校科学技术研究优秀成果二等奖（服饰文化遗产数字化保护关键技术研究及应用）；研究过程中，我与洪岩开展论文合作，共同发表《A mixed human body modeling method based on 3d body scanning for clothing industry》相关学术论文，为项目数字人体建模技术提供理论基础；我与袁桦、张俊杰等共同开展人体姿态识别技术研发，共同完成发明专利“一种人体姿态识别模型建立方法和人体姿态识别方法”，为本项目服饰动态数字化复原提供核心算法支撑。

项目各完成人分工协作，部分完成人之间除本项目之外，也在论文撰写、专利研发、成果报奖等工作中开展跨单位协同合作，各项合作成果均有对应的论文、专利、获奖证书作为佐证材料。以上合作经历为本项目技术体系构建、实验验证及成果落地应用奠定重要基础。

承诺：本人作为项目第一完成人，对本项目全部完成人合作关系及上述内容的真实性负责。

第一完成人签名：

刘凯旋



完成人合作关系情况汇总表

序号	合作方式	合作者/项目排名	合作起始时间	合作完成时间	合作成果名称
1	共同获奖	刘凯旋/1、张俊杰/2	2016	2025	服饰文化遗产数字化保护关键技术研究及应用
2	共同获奖	刘凯旋/1、张璐/2	2016	2025	服饰文化遗产数字化保护关键技术研究及应用
3	共同获奖	刘凯旋/1、周顺木子/6	2021	2025	服饰文化遗产数字化保护关键技术研究及应用
4	论文合著	刘凯旋/1、洪岩/5	2016	2025	A mixed human body modeling method based on 3d body scanning for clothing industry
5	共同知识产权	袁桦/1、刘凯旋/3	2022	2025	一种人体姿态识别模型建立方法和人体姿态识别方法

刘凯旋



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A mixed human body modeling method based on 3D body scanning for clothing industry

Mixed human body modeling method

673

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Abstract

Purpose – The purpose of this paper is to propose a relatively simple and rapid method to create a digital human model (DHM) to serve clothing industry.

Design/methodology/approach – Human body's point cloud is divided into hands, feet, head and torso. Then forward modeling method is used to model hands and feet, photo modeling method is used to model head and reverse modeling method is used to model torso. After that, hands, feet, head and torso are integrated together to get a static avatar. Next, virtual skeleton is bound to the avatar. Finally, a lifelike digital human body model is created by the mixed modeling method (MMM).

Findings – In allusion to the defect of the three-dimension original data of human body, this paper presented an MMM, with which we can get a realistic digital human body model with accurate body dimensions. The DHM can well meet the needs of fashion industry.

Practical implications – The DHM, which is got by the MMM, can be well applied in the field of virtual try on, virtual fashion design, virtual fashion show and so on.

Originality/value – The originality of the paper lies in the integration of forward modeling, reverse modeling and photo modeling to present a novel method of human body modeling.

Keywords Virtual reality, Body scanning, Digital human model, Mixed modeling, Reverse modeling

Paper type Technical paper

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