

(12) 按照专利合作条约所公布的国际申请

(19) 世界知识产权组织
国际局

(43) 国际公布日
2023 年 10 月 5 日 (05.10.2023)



(10) 国际公布号
WO 2023/185703 A1

(51) 国际专利分类号:
A63F 13/56 (2014.01)

(21) 国际申请号: PCT/CN2023/083969

(22) 国际申请日: 2023 年 3 月 27 日 (27.03.2023)

(25) 申请语言: 中文

(26) 公布语言: 中文

(30) 优先权:
202210313961.2 2022 年 3 月 28 日 (28.03.2022) CN

(71) 申请人: 百果园技术 (新加坡) 有限公司
(**BIGO TECHNOLOGY PTE. LTD.**) [SG/SG]; 新加坡新加坡市巴西班让路枫树商业城 30 号楼 15 层 31A, Singapore 117440 (SG)。

(72) 发明人: 及

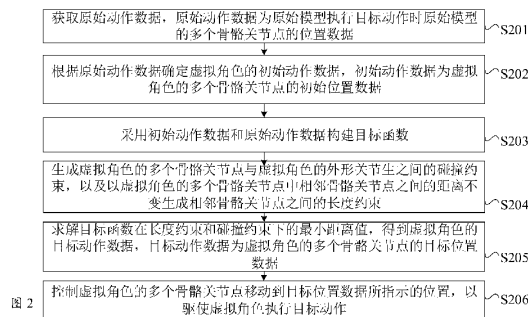
(71) 申请人 (仅对 US): 陈健军 (**CHEN, Jianjun**) [CN/CN]; 中国广东省广州市番禺区市桥街兴泰路 274 号 C 栋西塔 5-13 层, Guangdong 511402 (CN)。

(74) 代理人: 北京品源专利代理有限公司 (**BEYOND ATTORNEYS AT LAW**); 中国北京市海淀区莲花池东路 39 号西金大厦 6 层, Beijing 100036 (CN)。

(81) 指定国 (除另有指明, 要求每一种可提供的国家保护): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CV, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IQ, IR, IS, IT, JM, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, MG, MK, MN, MU, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA,

(54) **Title:** MOTION CONTROL METHOD, APPARATUS AND DEVICE FOR VIRTUAL CHARACTER, AND STORAGE MEDIUM

(54) 发明名称: 虚拟角色的动作控制方法、装置、设备和存储介质



S201 ACQUIRE ORIGINAL MOTION DATA, WHEREIN THE ORIGINAL MOTION DATA IS POSITION DATA OF A PLURALITY OF SKELETON JOINT POINTS OF AN ORIGINAL MODEL WHEN THE ORIGINAL MODEL EXECUTES A TARGET MOTION

S202 ACCORDING TO THE ORIGINAL MOTION DATA, DETERMINE INITIAL MOTION DATA OF A VIRTUAL CHARACTER, WHEREIN THE INITIAL MOTION DATA IS INITIAL POSITION DATA OF THE PLURALITY OF SKELETON JOINT POINTS OF THE VIRTUAL CHARACTER

S203 CONSTRUCT A TARGET FUNCTION BY USING THE INITIAL MOTION DATA AND THE ORIGINAL MOTION DATA

S204 GENERATE A COLLISION CONSTRAINT BETWEEN THE PLURALITY OF SKELETON JOINT POINTS OF THE VIRTUAL CHARACTER AND PROFILE JOINT POINTS OF THE VIRTUAL CHARACTER, AND GENERATE A LENGTH CONSTRAINT BETWEEN ADJACENT SKELETON JOINT POINTS AMONG THE PLURALITY OF SKELETON JOINT POINTS OF THE VIRTUAL CHARACTER ON THE BASIS OF AN UNCHANGED DISTANCE BETWEEN THE ADJACENT SKELETON JOINT POINTS

S205 SOLVE THE MINIMUM DISTANCE VALUE OF THE TARGET FUNCTION UNDER THE LENGTH CONSTRAINT AND THE COLLISION CONSTRAINT, SO AS TO OBTAIN TARGET MOTION DATA OF THE VIRTUAL CHARACTER, WHEREIN THE TARGET MOTION DATA IS TARGET POSITION DATA OF THE PLURALITY OF SKELETON JOINT POINTS OF THE VIRTUAL CHARACTER

S206 CONTROL THE PLURALITY OF SKELETON JOINT POINTS OF THE VIRTUAL CHARACTER TO MOVE TO POSITIONS INDICATED BY THE TARGET POSITION DATA, SO AS TO DRIVE THE VIRTUAL CHARACTER TO EXECUTE THE TARGET MOTION

(57) **Abstract:** Disclosed in the embodiments of the present application are a motion control method, apparatus and device for a virtual character, and a storage medium. The method comprises: acquiring original motion data, wherein the original motion data is position data of a plurality of skeleton joint points of an original model when the original model executes a target motion; according to the original motion data, determining initial position data of the plurality of skeleton joint points of a virtual character; constructing a target function by using the initial position data and the original motion data; generating a collision constraint between the plurality of skeleton

[见续页]

PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW。

(84) 指定国 (除另有指明, 要求每一种可提供的地区保护): ARIPO (BW, CV, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SC, SD, SL, ST, SZ, TZ, UG, ZM, ZW), 欧亚 (AM, AZ, BY, KG, KZ, RU, TJ, TM), 欧洲 (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, ME, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG)。

根据细则4.17的声明:

- 关于申请人有权申请并被授予专利 (细则4.17(ii))
- 关于申请人有权要求在先申请的优先权 (细则4.17(iii))
- 发明人资格 (细则4.17(iv))

本国际公布:

- 包括国际检索报告 (条约第21条(3))。

joint points of the virtual character and profile joint points of the virtual character, and using an unchanged distance between adjacent skeleton joint points among the plurality of skeleton joint points of the virtual character as a length constraint; solving the minimum distance of the target function under the length constraint and the collision constraint, so as to obtain target position data of the plurality of skeleton joint points of the virtual character; and controlling the plurality of skeleton joint points of the virtual character to move to positions indicated by the target position data, so as to drive the virtual character to execute the target motion.

(57) 摘要: 本申请实施例公开了一种虚拟角色的动作控制方法、装置、设备和存储介质, 包括: 获取原始动作数据, 原始动作数据为原始模型执行目标动作时原始模型的多个骨骼关节点的位置数据; 根据原始动作数据确定虚拟角色的多个骨骼关节点的初始位置数据; 采用初始位置数据和原始动作数据构建目标函数; 生成虚拟角色的多个骨骼关节点与虚拟角色的外形关节点之间的碰撞约束, 以及以虚拟角色的多个骨骼关节点中相邻骨骼关节点的距离不变为长度约束, 求解目标函数在长度约束和碰撞约束下的最小距离得到虚拟角色的多个骨骼关节点的目标位置数据; 控制虚拟角色的多个骨骼关节点移动到目标位置数据所指示的位置, 以驱动所述虚拟角色执行所述目标动作。