Humanoid Robotics – Senior CAD Designer

Reports to:	Head of Animatronics
Location:	Miramar, Wellington

The purpose of the role is the development of humanoid and creature robotics, collaborating closely with a multidisciplinary team of artists and engineers.

Key Accountabilities & Outcomes

- Collaborate with engineers to model, test, and optimize mechanical designs for cutting-edge animatronics and robotics projects.
- Utilize mechanical CAD design, leveraging industry-standard software like SolidWorks, Inventor, or Fusion 360 to create detailed engineering models for fabrication and assembly.
- Apply advanced mechanical skills, including motion simulation and optimization techniques, to develop innovative and highly functional robotic systems.
- Demonstrate proficiency in supplementary CAD software such as Rhino 3D and zBrush, and integrate different modelling approaches to achieve project objectives.
- Apply knowledge of anatomical motion to inform design decisions.
- Design mechanical drive mechanisms, including linkages, gears, belt/chain drives, and ball-screws, to enhance system efficiency and durability.
- Utilize expertise in servo actuator technologies to calculate forces, loads, and gear ratios, selecting appropriate actuators for each motion.
- Understand mechanical assembly and workshop fabrication processes to guide design decisions.
- Apply knowledge of 3D printing technologies and materials, as well as subtractive CNC processes, to inform design strategies.
- Collaborate effectively with a diverse team, sharing ideas, providing constructive feedback, and working towards achieving project milestones.

Skills & Experience

ESSENTIAL

- Minimum 3 years' experience in mechanical CAD design.
- Tertiary training in Robotics, Mechanical Engineering or a related field
- Proficiency in SolidWorks or a similar package
- Experience with motion simulation and optimization techniques
- Strong understanding of mechanical engineering principles
- Excellent problem-solving and analytical skills
- Ability to work collaboratively in a multidisciplinary team
- Ability to work in a fast paced environment

DESIRABLE

- Experience in animatronics or robotics design
- Knowledge of servo motor control systems
- Familiarity with 3D printing and CNC machining processes
- Experience with Rhino 3D and zBrush
- Understanding of electronics and basic programming concepts

Key Working Relationships

INTERNAL

- Animatronics Team
- Head of Animatronics
- Project Supervisors
- Other Workshop HODs and Teams

Change to Job Description

JD Completed on: September 2024 Review Date: September 2024