XU JUSEN

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Undergraduate
Structural/Mechanical Design

EDUCATION BACKGROUND

2022~2026 HKUST UG **Integrative System and Design + Robotics**

EXPERIENCE & PROJECTS

- **Teaching Assistant Intern**, Shenzhen Institute of Innovation & Technology Challenge Camp
  Guided students in problem definition and solution development; recognized as Star Teaching Assistant.
- **Year 2 Course Project – Underwater Biomimetic Robot**: Designed full structure and silicone mold; developed segmented quick-release waterproof sealing and servo-driven wire-actuated biomimetic fish tail.
- **Year 2 Project – Shopping Robot**: Conducted market research, designed mechanical structure, and developed embedded systems; implemented synchronous belt–parallel lead screw drive and quick-release housing fastener design.
- **Year 3 Project – Tennis Robot (Project Manager)**: Led complete structural design and embedded programming; integrated multiple mechanisms including disc-based serve/receive system, linkage lifting, worm-gear rocker arm, and wheel-edge reduction drive.
- **Year 4 Project – All-Terrain Wheelchair**: Oversaw structural design and load-bearing safety calculations; developed articulated wheelset, slip-ring transmission, and production-oriented design principles.
- **UROP Research Program** – Origami Actuator (Kresling Structure): Designed and studied origami-based actuators achieving localized motion.
- **RoboMaster University Competitions**
  - Mechanical team member in University Alliance and Super Contest.
  - 2024/25 Season: Sentry Robot mechanical lead; designed industrial aesthetics (magnetic battery cover, low-poly shell) and full chassis.
  - 2025 Season: Mechanical department senior and TA; taught structural modeling and DFMA
  - 2025 Season: Infantry Robot mechanical lead; developed mortise-and-tenon plate chassis and complete steering-wheel suspension.
  - 2025 Season: Independently developed 14.8:1 all-metal planetary gearbox (NW configuration) based on M3508 motor, standardized across team lineup.
  - 2025: Won RoboMaster University Alliance Championship with HKUST ENTERPRIZE team.
- Innox HK Winter Camp 2026: Final Pitch – awarded Best Project.

TECHNICAL SKILLS

- Self-taught and proficient in SolidWorks.
- 6 years of 3D printing experience; assembled and modified multiple open-source 3D printers and a CNC milling machine.
- Skilled in FDM and CNC part design; optimized structures for processes including wire-cutting, powder metallurgy, and metal printing to reduce costs.
- Developed custom 16:1 all-metal cycloidal gearbox based on M3508 motor.
- Contributed accessory designs to the open-source 3D printing community.
- Produced technical content on Bilibili (3D printing & CNC), reaching 50,000+ views.

USEFUL LINKS

- Personal Website: http://shkinsem.com
- Github: https://github.com/SHKinsem