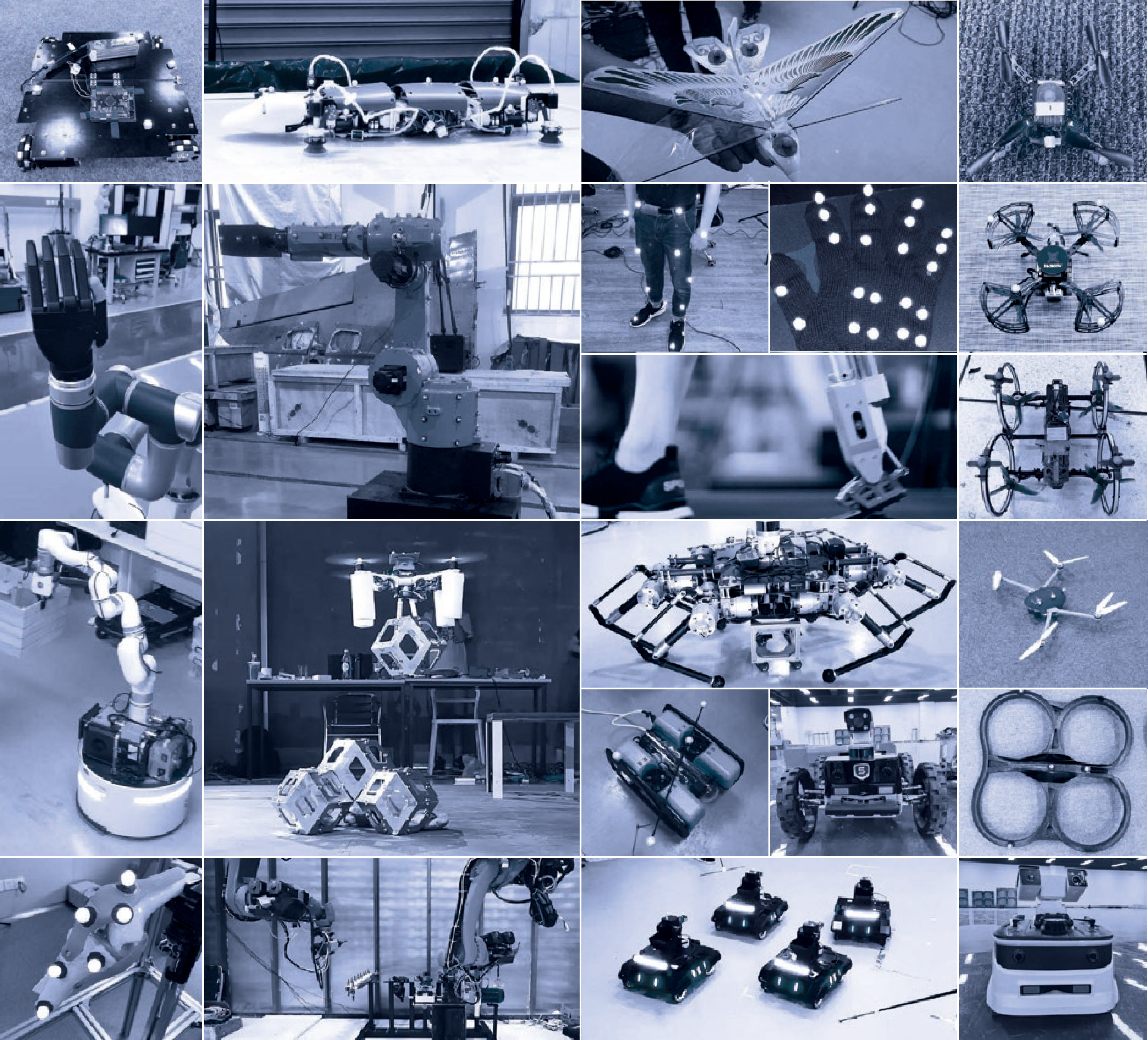
NOKOV

NOKOV

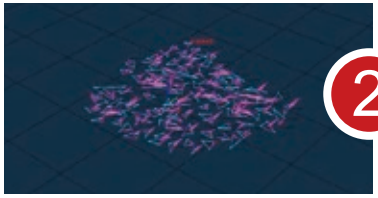
Motion Capture System

Applications in Robotics and UAV



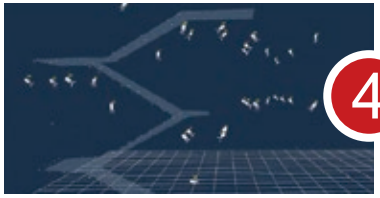
NOKOV Optical Motion Capture Systen

1. Sub-millimeter, low-latency 6DoF positional data



2. Creation of multiple rigid bodies with one-click

3. Multimodal integration with synchronized access to various biomechanical devices



4. Integration of complex scenes

5. Suitable for large-scale, underwater, and outdoor environments

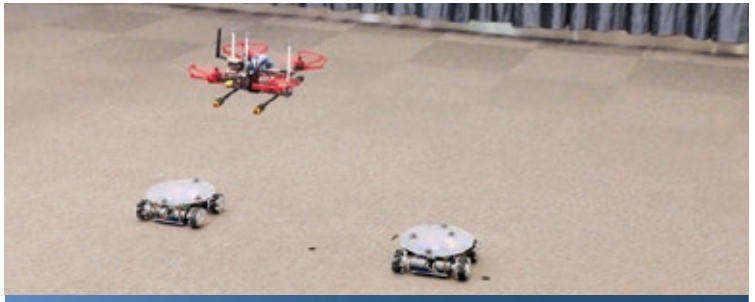
Formation and Collaborative Control of Robot Clusters

Zhejiang University
Passive wheeled TABV trajectory planning and control

Beihang University
Distributed control and formation of heterogeneous robot clusters

Institute of Automation, Chinese Academy of Sciences
Autonomous obstacle navigation by unmanned vehicle clusters

Beijing Institute of Technology
Collaborative control among multiple agents



Beijing Institute of Technology
Experimental platform for networked collaborative control of multiple agents

Northwestern Polytechnical University
Control of swarm robotics clusters

Application Scenarios and User Cases

Mobile Robots

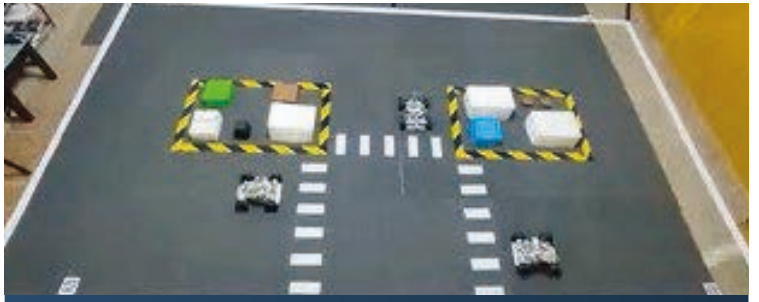
Tsinghua University
Indoor UAV positioning

Shanghai Jiao Tong University
Indoor UAV positioning

Harbin Institute of Technology, Shenzhen
Dynamic Obstacle Avoidance Algorithm

Beihang University
Multi-Robot Formation

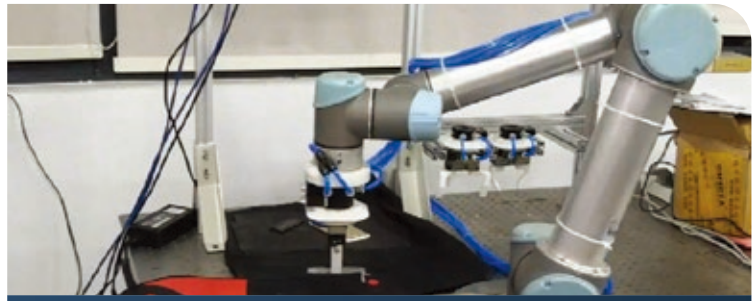
China Automotive Technology and Research Center
Intelligent transportation systems



Hunan University
Collaborative trajectory planning for multiple unmanned vehicles

Robotic Arms

Osaka University
Teaching and learning with collaborative robotic arms



Harbin Institute of Technology, Shenzhen
Assembly robot learning for component assembly

The Hong Kong Polytechnic University
Human-robot collaborative manufacturing

Sichuan University
End-effector positioning of robotic arms

Pose Detection

Beihang University
Pose detection using satellite vision technology

Tsinghua University
Enhancing Generalizable 6D Pose Tracking

Application Scenarios and User Cases

Exoskeleton and Rehabilitation Robotics

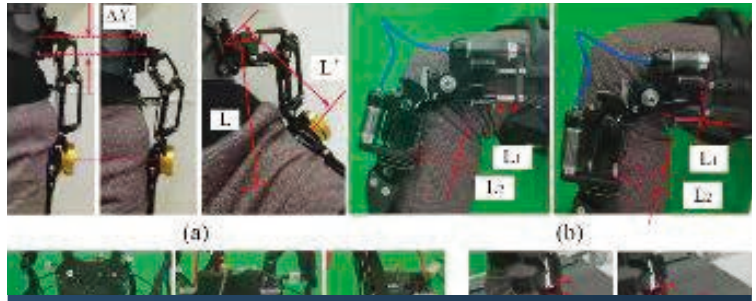
Nankai University
Medical rehabilitation robotics

Southern University of Science and Technology
Environmentally adaptive hip-assisted exoskeleton systems

University of Oxford
Medical robots

Gwangju Institute of Science and Technology, Korea
Rehabilitation robots

Nanjing University of Science and Technology
Back Exoskeleton



Harbin Institute of Technology
Mechanical exoskeletons

Bionic Robots

Shanghai Jiao Tong University
Hexapod robots

Shandong University
Quadruped robots

Harbin Institute of Technology, Shenzhen
Large-space flapping-wing robots

Shenzhen University
Robotic dolphins

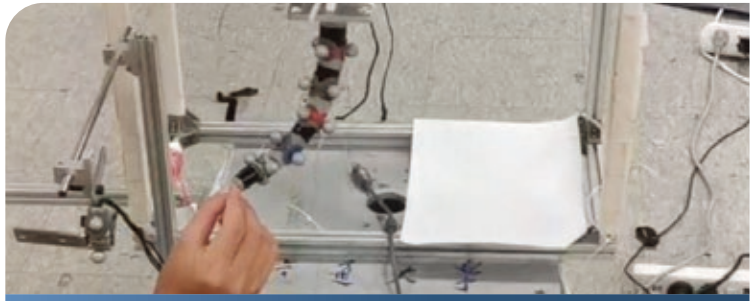
Maritime and Underwater Applications

Harbin Institute of Technology, Shenzhen
Underwater robotic positioning

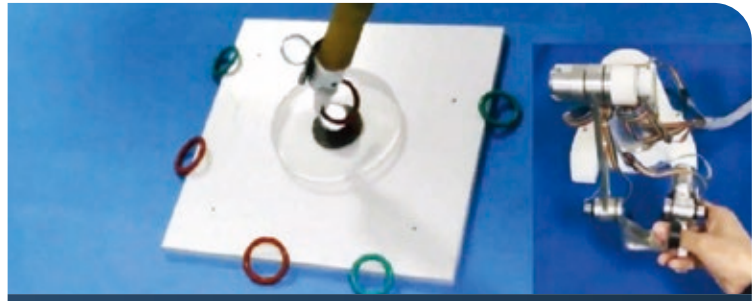
Tianjin Research Institute for Water Transport Engineering
Tunnel motion and deformation measurement

Application Scenarios and User Cases

Soft Robots



Shanghai Jiao Tong University
Flexible robotic arms

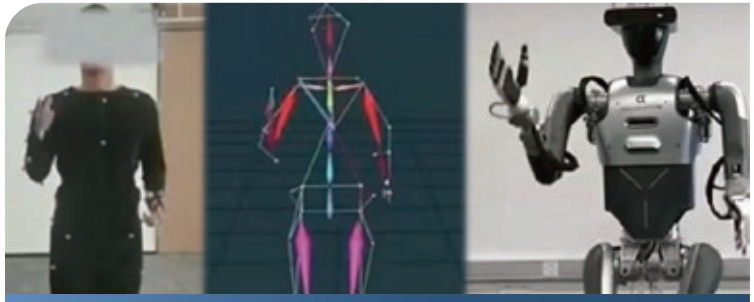


Jilin University
Surgical robots

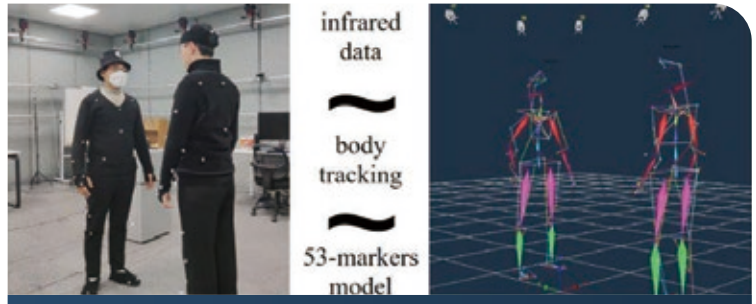
China University of Mining and Technology
Snake robots

Changchun University of Science and Technology
Snake motion capture and development of snake robots

Humanoid Robots

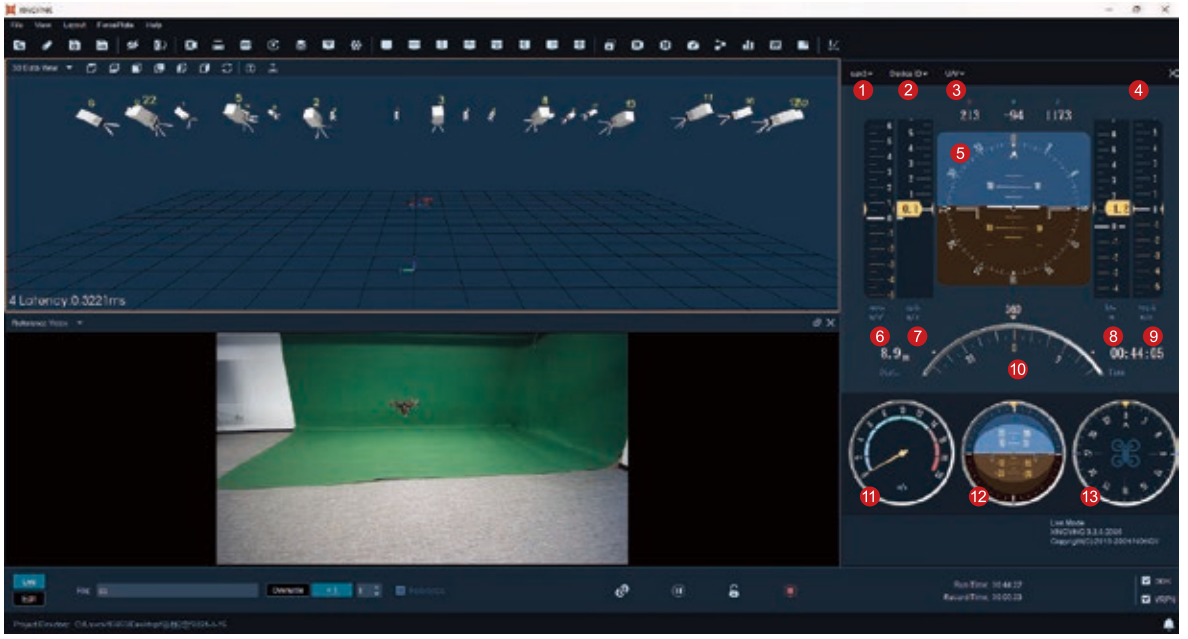


Zhejiang University
Humanoid robots



Tongji University
A HUG taxonomy of humans with potential in human–robot hugs

Intelligent Agent Dashboard



1. Bind rigid bodies
2. Bind devices
3. Select device type
4. Device battery level
5. Pitch and roll angles
6. Acceleration
7. Speed
8. Height
9. Climb rate
10. Yaw angle
11. Speed
12. Pitch and roll angles
13. Yaw angle

- Supports binding of rigid bodies
- Graphical representation of real-time data
- Provides synchronized reference video

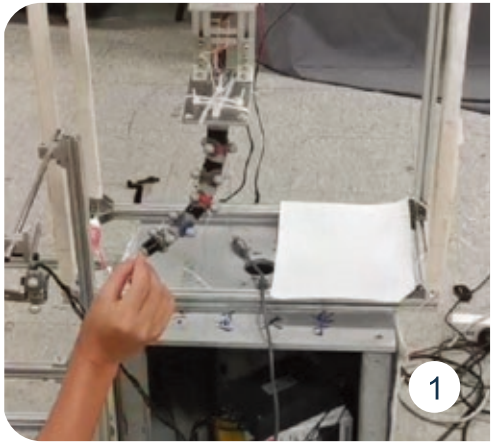
Enhanced Data Transfer

SDK **VRPN** C++ Python Matlab Simulink LabView Raspberry Pi

Performance Advantages

Flexible Body Capture

- Support for custom models
- Model training capability
- Compatibility with diverse biomechanical devices
- Minimize data post-processing



1 Multi-segment flexible robotic arms

2 Soft robotics

3 Quadrupeds and soft-bodied creatures

4 Flexible bodies like ropes

Enhanced Data Transfer

ROS / ROS2 · Linux · Windows · Mac · Android · Crazyflie · PX4

Performance Advantages

Multimodal Data Integration

- Compatibility with diverse biomechanical devices
- Achieve data integration and synchronized acquisition
- Independent control of varied data sources

MULTIPLE OUTPUT FORMATS

.c3d .trc .trb

FORCE PLATE

BERTEC KUNWEI 坤维科技 KISTLER AMTI SRI 宇立仪器

EMG

cometa DELSYS 智芸荟 NORAXON WISEWOW 润谊泰益

EEG

neuracle博睿康 COMPUMEDICS NeuroScan

REFERENCE CAMERA

BASLER DAHENG IMAGING 大恒图像 HIKVISION FLIR

EYE TRACKERS

tobii 7INVENSUN 七鑫易维

INSTRUMENTED TREADMILLS

BERTEC AMTI h/p/cosmos

PLANTAR PRESSURE MEASUREMENT

MedTrack SENSOR medica

NOKOV Motion Capture

SOFTWARE

Visual3D BoB Biomechanics ANYBODY TECHNOLOGY CATIA DELMIA Mokka OpenSim

Offices and Distributors


Beijing


Shanghai


Japan


Korea


France


Wuhan


Shenzhen


Spain


Thailand


Russia


India

After-Sales Training

Regular online and onsite training sessions

NOKOV 's Service Edge

7·24

24/7 localized technical support

DESIGN

Customized solutions for complex scenarios

Accessory procurement

Installation and operation guides

Academic paper repository access

NOKOV

MARS Series Motion Capture Cameras

Scientifically engineered for core motion capture performance

Model	P/N	Pixels MP	Resolution	Frame Rate FPS	Latency ms	3D Accuracy mm	Max Distance m	FOV
MARS 1.3H	Mars 1.3H	1.3	1280×1024	240	4.0	±0.2	11	56°×46°
	Mars 1.3HW	1.3	1280×1024	240	4.0	±0.3	9	95°×74°
MARS 2H	Mars 2H	2.2	2048×1088	380	2.4	±0.15	21	70°×40°
	Mars 2HW	2.2	2048×1088	380	2.4	±0.25	15	104°×55°
MARS 4H	Mars 4H	4	2048×2048	180	5.2	±0.1	32	52°×52°
	Mars 4HW	4	2048×2048	180	5.2	±0.25	20	90°×90°
MARS 9H	Mars 9H	9	4250×2160	300	3.0	±0.05	28	68°×37°
MARS 14H	Mars 14H	14	4608×3072	670	2.0	±0.05	27	68°×45°
MARS 18H	Mars 18H	18	4508×4096	139	5.0	±0.04	28	52°×47°
	Mars 18HW	18	4508×4096	139	5.0	±0.15	18	90°×82°
MARS 26H	Mars 26H	26	5120×5120	150	4.0	±0.03	30	56°×56°
	Mars 26HW	26	5120×5120	150	4.0	±0.1	20	105°×105°

Underwater Cameras

Tested for 100m depth and versatile for use in all aquatic environments

Model	P/N	Pixels MP	Resolution	Frame Rate FPS	Latency ms	3D Accuracy mm	Max Distance m	FOV	Max Deep m
MARS 1.3H UW	UW-100	1.3	1280×1024	240	4.0	±0.3	6	95°×74°	100
MARS 4H UW	UW-6-50	4	2048×2048	180	5.2	±0.30	8	90°×90°	50
	UW-8-50	4	2048×2048	180	5.2	±0.25	10	74°×74°	50

NOKOV motion capture systems employed by most of China's top universities

NOKOV's Featured Clients

Tsinghua University

Zhejiang University

Shanghai Jiao Tong University

Fudan University

Southern University of Science and Technology

Huawei

University of Oxford

Osaka University

Harbin Institute of Technology

Nanjing University of Aeronautics and Astronautics

Shenzhen innoX

Tencent

Beihang University

Xi'an Jiaotong University

Beijing Institute of Technology

Xidian University

Shenzhen University

aMap

Huazhong University of Science and Technology

South China University of Technology

Northwestern Polytechnical University

Nanjing University

Tianjin University

Alibaba

Tongji University

University of Science and Technology of China

Sun Yat-sen University

The Hong Kong Polytechnic University

Xiamen University

DJI

Nankai University

Southeast University

National Institute of Technology, Tiruchirapalli, India

Wuhan University

Shandong University

Daikin

Chinese Academy of Sciences

China Academy of Launch Vehicle Technology

China Electric Power Research Institute

China Automotive Technology and Research Center

Sichuan University

The Chinese University of Hong Kong

NOKOV

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