Dawei TANG https://daweitang.world +86 18810574613 t-dawei@foxmail.com

OBJECTIVE

Integrating computer vision and tactile feedback into public interactive systems to foster adaptive and emotionally resonant human experiences.

EDUCATION

Rhode Island School of Design | Master of Landscape Architecture | 2016-2019
Brown University | Control Engineering & Programming | 2016-2019
Beijing Forestry University | Bachelor of Landscape Architecture | 2011-2015

EXPERIENCE

Computer Vision Algorithm Engineer | Beijing Deck Smart Tech Co. | Full-time | 2021-
Lead R&D of multi-modal perception system intergrating computer vision and robotic control.
Holds 2 invertion patents in computer vision and sensing technologies.

- Self-Patrol Vehicle | Main Algorithm Developer | On Going Project |
  Lead auto-driving system early researching, including sensors testing and Carla simulation;
  Main developer of auto-driving modules includinng docking, path plan and obstacle avoidance;
  Developer of the whole vision based HRI application-layer algorithms. | 2023.9 -

- 4-Axis Robotic Arm | Full Stack | On Going Project |
  Independently completed kinematic simulation and passive couterbalance structural design;
  Implemented closed-loop control and vision-based interaction algorithm. | 2024.11 -

- Pest Recognition | Developer | Invention Patent CN116188872A | First Inventor
  Achieved >94% accuracy across 15 harmful insects on 100+ insects monitor stations. Capable of recognizing overlayed and misshappen insects under various light conditions. | 2022.4 - 10

- Mechanical Flower | Full Stack | Cover of 2022.9 "Landscape Architecture" |
  Owned complete development cycle from design, prototyping, production to deployment.
  Landed at Shanghai Art Festival. | 2021.11 - 22.5

- AR Telescope | Full Stack | Invention Patent CN116246085A |
  Owned end-to-end development from concept to deployment. Proposing and validating three orientation-tracking solutions: Dual-angle sensors (baseline); Computer vision-based matching (patened); Gravity sensor + mechanical hybrid. | 2021.3 - 9, 2023.3

Technical Consultant | Cangzhou Zhihua Machinery Equip Co. | Part-time | 2023 -
Delivered hardware-software-structural solutions for interactive installations, including detailed assembly protocols and troubleshooting frameworks.

- Rapid Prototyping | Developed 6 interactive installations (touch/wind/vision-based/etc.) , ahieving prototype-to-batch production within 21 days (7-day concept validation).

- Production Optimization | Streamlined iterative devices through hardware simplification and worker training, enabling full assembling by technicians without oversight.

Research Collaborator | Landscape Eco Planning Group in BJFU | Part-time | 2021-
Collaborated with Prof. Yu Ye to led graduate research on visitor behavior patterns in open spaces.

- Physical Interaction | On-Going Research | Investigating how physical interactions influence tourists' emotion in outdoor spaces through interactive installations. | 2024.2 -

- Group Action Mapping | First-Authored Research | Mapping tourists' behavioral patterns with action recognition and localization algorithms. | 2021.10 - 2023.12

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EXPERIENCE

Hardware R&D and Production Lead | Beijing Deck Smart Tech Co. | Full-time | 2020-2021
Led 10-member cross-functional team (2 PMs, 4 Designers, 4 Engineers) to establish the company's foundational product ecosystem across three domains.

- Systematic Product Development | Delivered 10+ first-gen outdoor interactive products:
  Sports Tech | Vision-based running tracker poles (Patent CN306439907S); Kinetic bikes
  Urban Infrastructure | Voice guidance IOT trash bins; Touch-responsive benches
  Popular Outreach | Gesture sensing poles; Tactile sound devices; AR telescope
- Public Art Installation | Executed 3 large-scale interactive landmark projects, including Beijing's first outdoor autostereoscopic 3D display (5x5x5m) with multi-user triggering.
- Agile Production Pipeline | Established hybrid manufacturing with core team - temp workers - contract Manufacturer, capable of assembling batch sized from 1 to 50 units.

SKILLS

Human-Robot Interaction | Behavioral Sensing
- HRI Frameworks | Tactile engagement strategies | Vision/force/position hybrid control
  Multi-modal feedback | Visual/tactile/auditory cue integration (Robotic arm)
- Behavior Modeling | Visitor emotion inference | Facial/gesture fusion analysis
  Group action recognition and mapping (BJFU research)

Computer Vision | Auto-Driving
- Core Competencies | Auto-driving modules | Sensor fusion, path planning, Carla simulation
  Vision pipelines | Multi-modal monitoring & interaction (Self patrol vehicle)
- Development Stack | Python, C++ | PyTorch, OpenCV，ROS, MQTT, ffmpeg, etc.
  Hardware | Jetson Orin, Stereo cam, Lidar, Imu, RTK-GNSS, etc.

Hardware Systems
- Mechanical Design | Structural and kinetical design: Rhino, GH | Simulation: Kangaroo physics
  Outdoor durability | IP65 water/dust proofing & -20° ~60° thermal range
  Child safety | Touch-safe and pinch-proof design
- Embeded Control | Torque/speed/position closed-loop control for stepper/BLDC motor
  Embeded development on Arduino | PCD design on EasyEDA

Software Interaction
- Interactive Media | UI design: PS, AI | UX design: Figma, Mastergo
  Visual programming: TouchDesigner
- Web Infrastructure | Full-stack development: HTML, CSS, JS, SQL
  Deployment: AWS EC2 + Nginx + ICP licensing

Art & Design
- Drawing | Field sketching: landscape architecture | Technical illustration: patent diagrams
- Handmaking | Functional prototypes: 3d printing, laser cutting
- Animation | Motion simulation: Maya | Promotional videos: After Effects

ATHLETICS

Speed Roller Skating | Broke 300m and 1500m Beijing University records for four times
Badminton | Snowboarding | Climbing | Cycling | Frisbee | Aikido | etc.