Jiyu Xie

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GitHub Projects：https://jiyu-xie.github.io/; https://jiyu-xie.github.io/Portfolio/

EDUCATION BACKGROUND

Southern University of Science and Technology (SUSTech) **Shenzhen**

Bachelor of Engineering in Robotics Engineering; GPA：3.11/4.0 **Expected 06/2019**

Honours: University 3rd Prize Freshmen Scholarship; Outstanding Journalist Award **2015**

ACADEMIC EXPERIENCES

Team Leader, **Swimming Micro/Nano-Robotics' Lab,** SUSTech, Cantonese Students' platform for innovation and entrepreneurship training programme, funded by the Chinese Ministry of Education **Shenzhen**

Advisor: Professor U Kei Cheang

Precise Tumor Treatment Fabrication and Manipulation of Micro/Nano-Robotics **03/2018 – Present**

- Built a Helmholtz Coil CAD model of the magnetic control microscope system by Solidworks
- Designed 12 nano-structure patterns by AutuCAD and 12 kinds of deoxyribonucleic acid(DNA) nano-structure by caDNAno for the fabrication of robotics.
- Improved the structural stability; reduce the root mean square fluctuation of DNA nano-structure to an average level of 1.27nm, the predicted 3D shape was tested using finite element modelling implemented in the software CanDo to visualise how the skips and insertions in the design affect the behaviour of the structure.
- Fabricated the swimming nano-robotics with nano-imprinting and DNA origami techniques
- Characterized all the nano-structures by the gel electrophoresis and Transmission Electron Microscope(TEM), and confirmed the viability of DNA strand mechanisms.

Team Member, **Underwater Robotics' Lab**, SUSTech,

funded by the Chinese Ministry of Education **Shenzhen**

Advisor: Professor Wende K

Modular Design and Applications of Remotely Operated Underwater Vehicle (ROV) **09/2017 - Present**

- Built a CAD prototype of ROV (370mm*760mm*135mm) and analyzed its stability by Solidworks
- Improved the stability of the ROV structure through SolidWorks simulation and hands-on test;
- Waterproofed the electronics through equipping the hull and frame with underwater switch, subsea connector, O-rings, glues, etc.
- Fabricated and assembled the 3D-Printed ROV structure with ABS plastic.
- Built the model that could swim over 1.0 m/s, and reach depth above 3.0m.

Undergraduate Research Assistant, **Micro/Nano-Swimming-Robotics' Lab**, SUSTech **Shenzhen**

Advisor: Professor U Kei Cheang **07/2016 – Present**

- Designed 24 micro-structure patterns by AutoCAD;
- Optimized uniformity of the photoresist film, adhesiveness between underlay and glue film, exposal and develop condition;
- Developed controllable process in fabricating the micro-swimming-robotics by photolithography.

Undergraduate Research Assistant, **Human-Augmented Robotics Lab,** SUSTech **Shenzhen**
Advisor: Professor Chenglong Fu **09/2016 – 08/2016**

- Helped build a foot prosthesis CAD model by Solidworks;
- Explored the mechanical structure of a passive exoskeleton through gait analysis;
- Investigated the Xsens MVN Arwinda® motion caption system on several key performances such as latency, output rate, battery life, wireless range indoor/outdoor, etc.
- Found that the proven MVN analyze biomechanical model and sensor fusion algorithms enabled the real-time, reliable and accurate human motion analysis in challenging magnetically disturbed environments.

Summer Research Programme, **Department of ME,** Tsinghua University **Beijing**
Advisor: Professor Gang Wang **07/2016 - 08/2016**

- Developed the 3D Printing In Zero-G Technology;
- Helped design a CAD model for the infinite build one-dimensional printer protocol by Solidworks;
- Repaired a damaged 3D-printer(HORI®) and provided maintenance advice;
- Demonstrated a proof-of-concept test of the properties of melt deposition modeling additive manufacturing in the microgravity environment, the printer prints at speeds which are typically in the range of 10-40 mm/sec.

EXTRACURRICULAR ACTIVITIES

Woodworking Class **09/2016 - 10/2018**

- Learned the basic processes of the woodworking, e.g. drying, machining, assembly, pre-finishing, surface finishing, etc.;
- Handled a variety of woodworking machines, e.g. rough planer, cutoff saw, rip saw, finish planer, moulder, lathe, jointer, table saw, band saw, router, shaper, drill, mortiser, tenon, carver and sanders, etc.;
- Made a pair of bunny chairs(designed by Yu Watanabe, Hiromatsu Furniture Inc.), and a wooden bowl, from solid beech wood.

3D-Printing Club **09/2015 - 01/2017**

- Learned the mechanism of 3D printing and helped build a portable 3D-Printer with Arduino;
- Designed a product using 3D Printing software such as Tinkercad and Cura to the juniors;
- Co-host a variety of events such as 3D-Printing Art show, Design-and-Print Competitions.

Students' News Agency **09/2015 - 01/2017**

- Responsible for the photography and interviews for the guests of SUSTech Lecture;
- Elected as 2016 'Excellent Agency Member' of Students' News Agency.

SKILLS AND INTERESTS

- Hands-on Skills: Computer Number Control(CNC); 3D-Printing, Woodworking; Nano-Imprinting; DNA Synthesis; TEM Imaging;
- Programming Languages: Python; C/C++; Java; HTML5; MatLab/Simulink; NI LabView; LaTeX; Markdown;
- Softwares: SolidWorks; AutoCAD; COMSOL; V-REP; ABB RobotStudio; MasterCAM; Maya; Origin; Advanced Office software (Word, PowerPoint, Excel); Advanced Adobe software (Photoshop, Illustrator, Premiere); etc;
- Operating System: Linux; Windows; Git;
- Interests: Woodworking; Photography; Hiphop Dance; Baking; Trekking; Painting; Sci-Fi;