Fei PAN (潘飞)
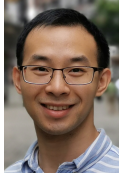
Born in April 1991 ⋄ Chinese ⋄ Male ⋄ Married

 fei.pan.0575 ⋄ fei.pan@my.cityu.edu.hk ⋄ starfarming.top

 ⋄ R⁶ ⋄ Lab Y1417, Yeung Kin Man Academic Building, City University of Hong Kong

WORK EXPERIENCE

Hong Kong Centre for Cerebro-Cardiovascular Health Engineering Limited (COCHE)   Mar. 2021 – Present
Postdoctoral researcher in an interdisciplinary research center in the Hong Kong Science and Technology Parks Corporation (HKSTP), but currently still works in CityU

City University of Hong Kong   Sept. 2019 – Feb. 2021
Research assistant at the Robotics, Control and Biotechnology Research Laboratory of the Department of Biomedical Engineering

City University of Hong Kong   Sep. 2017 – Dec. 2018
Teaching assistant of the English course "Mechanics of Materials" of ~ 20 students for three semesters

Adeo Group (No. 1 house DIY retailer in Europe)   May 2013 – Aug. 2013
Java Web Application Development Intern (On-site internship)
I improved an internal Java web application (based on Spring Framework) dedicated to collect employees' feedback

EDUCATION

City University of Hong Kong, China   Sep. 2016 – Feb. 2021
Doctor of Philosophy in Biomedical Engineering

Xi'an Jiaotong University, China   Sep. 2013 – Jun. 2016
Master of Engineering in Aircraft Design

Ecole Centrale de Lille, France   Sep. 2011 – May 2013
Diplôme d'ingénieur (Master of Engineering) in General Engineering

Xi'an Jiaotong University, China   Sep. 2009 – Jul. 2011
Bachelor of Engineering in Aircraft Design & Engineering

RESEARCH PROJECTS

Automated Microinjection of Adherent Cells (*at* CityU)   Advisor: Prof. Dong SUN (FCAE, IEEE Fellow)
Source of funding: GRF No. 11209917 and TBRS No. T42-409/18-R, UGC, Hong Kong Gov.
I independently developed a vision-guided automated high-throughput microinjection system for adherent cells. The system uses a home-made Qt/C++ program to control an XYZ motorized micromanipulator and an XY motorized microscope stage for batch injection of cells. A deep convolutional neural network is used to detect and segment cell images. Multiple micromanipulators are coordinated and optimized as a multi-traveling salesman problem. The cell injection throughput can reach up to 2000 per hour. The system has been used for CRISPR/Cas9 cell gene editing in the laboratory.

Shape Optimization of Curvilinear Blade-stiffened Panels (*at* XJTU)   Advisor: Prof. Jinxiong ZHOU ( )
Source of funding: No. 11372239, 11472210, and 11321162, National Natural Science Foundation of China
I developed a shape optimization framework for curvilinear blade-stiffened panels in which Abaqus/Standard is served as the finite element solver, CATIA for structural modeling, and Isight as the optimizer. The framework can be used to design multi-functional aircraft structures like pressurized fuselage structures subjected to complex loading cases.

ACADEMIC ACHIEVEMENTS

F. Pan, S. Chen, Y. Jiao, *et al.*, "A Deep Learning Enhanced Dual-module Large-throughput Microinjection System of Adherent Cells," (*under review*)

S. Chen, Y. Jiao, **F. Pan**, *et al.*, "Knock-in of a large reporter gene via the high-throughput microinjection of the CRISPR/Cas9 system," (*under review*)

Z. Guan, S. Chen, **F. Pan**, *et al.*, "Effects of gene delivery approaches on differentiation potential and gene function of mesenchymal stem cells," (*under review*)

Y. Jiao, **F. Pan**, S. Chen, *et al.*, " ███████████ " (*under preparation, first coauthor*)

D. Sun, **F. Pan**, S. Chen, *et al.*, "Robotic Platform and Methods for Automated High-throughput Microinjections of Adherent Cells," US Patent, (*in progress*)

F. Pan, S. Chen, Y. Jiao, *et al.*, "Automated High-Productivity Microinjection System for Adherent Cells," *IEEE Robotics and Automation Letters*, vol. 5, no. 2, pp. 1167–1174, Apr. 2020

F. Pan, S. Chen, Y. Jiao, *et al.*, "Automated High-Productivity Microinjection System for Adherent Cells," in *2020 IEEE International Conference on Robotics and Automation*, Paris, France, May 2020

A. Shakoor, M. Xie, **F. Pan**, *et al.*, "A Robotic Surgery Approach to Mitochondrial Transfer Amongst Single Cells," in *2019 IEEE/RSJ International Conference on Intelligent Robots and Systems*, Macau, China, Nov. 2019

RESEARCH PROPOSALS WRITTEN

A high-throughput dual-module microinjection system based on deep learning algorithm recognition
        Guangdong-Hong Kong Technology Cooperation Funding Scheme (Category C2)

High-throughput robotic microinjection system and its application in constructing gene-edited macrophages with enhanced tumor-killing ability General Research Fund, University Grants Committee, Hong Kong Government

AWARDS & SCHOLARSHIPS

|		
Postgraduate Studentship ($ 16500/Month)	University Grants cmte. (HK)	2016 – 2019
National Scholarship for Graduate Students (¥ 20000)	Ministry of Education (China)	2016
Academic Scholarship for Graduate Students (¥ 500/Month)	Xi'an Jiaotong University	2013 – 2016
"Sino-France 4+4" State-Sponsored Scholarship (€ 1200/Month)	China Scholarship Council	2011 – 2013
HSBC Bank Scholarship for Undergraduate Students (¥ 8000)	HSBC Bank	2011

MISCELLANEOUS

Languages	English (GRE 319, TOEFL 98), Français (débutant)
Computer	Qt/C++ Python PyTorch LaTeX
Biology	Adherent cell culture technique

潘飞

1991 年 4 月生　男性　汉族　已婚

fei.pan@my.cityu.edu.hk ⋄ *starfarming.top*

香港城市大学杨建文学术楼生物医学工程学系 Y1417 实验室 ⋄ ⓘ ⋄ R⁶
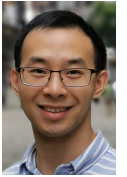
工作经历

香港心脑血管健康工程研究中心（公司）　　　　　　　　　　　　　　2021 年 3 月至今
博士后，归属于一间在香港科技园成立的交叉学科研究中心，但目前仍在香港城市大学开展实际工作

香港城市大学　　　　　　　　　　　　　　　　　　　　　　2019 年 9 月至 2021 年 2 月
生物医学工程系机器人、控制与生物技术研究实验室研究助理，继续贴壁细胞的自动化显微注射系统的研发

香港城市大学　　　　　　　　　　　　　　　　　　　　　　2017 年 9 月至 2018 年 12 月
三个学期的 "Mechanics of Materials" 课程助教，教授每学期约 20 名本科生实验课程，英文授课

安达屋集团总部（世界第三、欧洲第一的法国家装建材零售集团）　　2013 年 5 月至 2013 年 8 月
Java Web 应用开发实习（现场实习）
改进一个集团内部的专门用于收集员工反馈意见的 Java Web 应用程序（基于 Spring 框架）并撰写实习报告

教育经历

香港城市大学　　　　　　　　　　　　　　　　　　　　　　2016 年 9 月至 2021 年 2 月
工学院生物医学工程学系　　　　　　博士

西安交通大学　　　　　　　　　　　　　　　　　　　　　　2013 年 9 月至 2016 年 6 月
航天航空学院飞行器设计专业　　　　硕士

法国里尔中央理工大学　　　　　　　　　　　　　　　　　　　2011 年 9 月至 2013 年 5 月
法语教学的不分专业的工程学科　　　工程师学位（硕士）

西安交通大学　　　　　　　　　　　　　　　　　　　　　　2009 年 9 月至 2011 年 7 月
航天航空学院飞行器设计与工程专业　学士

科研项目

贴壁细胞的自动化显微注射　　　　　　博士导师：孙东教授（加拿大工程院院士 / IEEE Fellow ⓘ 𝔾）
资助来源：香港政府大学教育资助委员会优配研究金 11209917和主题研究计划 T42-409/18-R
研发了一套视觉引导的贴壁细胞自动化高通量显微注射系统。本系统使用自主编写的 Qt/C++ 程序控制一个
XYZ 电动微操手和一个 XY 电动显微镜载物台批量注射细胞；使用深度卷积神经网络对细胞图像做检测和
分割；对多个微操手协同操作用多旅行商问题求解；细胞注射通量可达最高每小时 2000 个；本系统已经用
于实验室的细胞基因编辑 (CRISPR/Cas9)。

曲线加筋壁板的形状优化　　　　　　　硕士导师：周进雄教授（教育部新世纪优秀人才 ⓘ 𝔾）
资助来源：国家自然科学基金 11372239、11472210 和 11321062
研发了一套用于曲线加筋壁板的形状优化框架。本框架用 Abaqus/Standard 作有限元求解器、用 CATIA 建模、
用 Isight 作优化器。本框架可用于设计复杂载荷情况下的多功能飞机结构，比如受压的飞机机身等。

科研成果

F. Pan, Y. Jiao, S. Chen, *et al.*, "A Deep Learning Enhanced Dual-module Large-throughput Microinjection System of Adherent Cells "(在审)

Z. Guan, S. Chen, **F. Pan**, *et al.*, "Effects of gene delivery approaches on differentiation potential and gene function of mesenchymal stem cells "(在审)

S. Chen, Y. Jiao, **F. Pan**, *et al.*, "Knock-in of a large reporter gene via the high-throughput microinjection of the CRISPR/Cas9 system "(在审)

Y. Jiao, **F. Pan**, S. Chen, *et al.*, "███████████████ ████████"(准备中, 共同一作)

D. Sun, **F. Pan**, S. Chen, *et al.*, "Robotic Platform and Methods for Automated High-throughput Microinjections of Adherent Cells," US Patent (进行中)

F. Pan, S. Chen, Y. Jiao, *et al.*, "Automated High-Productivity Microinjection System for Adherent Cells," *IEEE Robotics and Automation Letters*, vol. 5, no. 2, pp. 1167–1174, Apr. 2020 (中科院二区, 影响因子 3.608)

F. Pan, S. Chen, Y. Jiao, *et al.*, "Automated High-Productivity Microinjection System for Adherent Cells," in *2020 IEEE International Conference on Robotics and Automation*, Paris, France, May 2020 (EI 会议)

A. Shakoor, M. Xie, **F. Pan**, *et al.*, "A Robotic Surgery Approach to Mitochondrial Transfer Amongst Single Cells," in *2019 IEEE/RSJ International Conference on Intelligent Robots and Systems*, Macau, China, Nov. 2019 (EI 会议)

参与写作的科研项目申请

基于深度学习算法识别的双模块高通量细胞显微注射系统　　　　粤港科技合作资助计划丙（二）类平台项目

High-throughput robotic microinjection system and its application in constructing gene-edited macrophages with enhanced tumor-killing ability　　　　香港政府大学教育资助委员会优配研究金

所获奖励

校级全额奖学金（每月 16500 港币）	香港政府大学教育资助委员会	2016 - 2019
研究生国家奖学金（20000 人民币）	教育部	2016
研究生学业奖学金（每月 500 人民币）	西安交通大学	2013 - 2016
"中法 4+4" 公派奖学金（每月 1200 欧元）	国家留学基金委	2011 - 2013
汇丰银行奖学金（8000 人民币）	汇丰银行	2010

其他

外语　　英语（GRE 319, TOEFL 98）　法语（初学者）
计算机　Qt/C++　Python　PyTorch　LaTeX
生物　　熟悉贴壁细胞培养