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ZHANG JINGYI | RESUME

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EDUCATION & WORK EXPERIENCE

Southeast University **Nanjing, China** **Aug. 2013 – June 2020**

- **M.Eng. in Biomedical Engineering,** Bioelectronics track, GPA: 3.76/4.0
- **B.E. in Biomedical Engineering,** Bioelectronics track, GPA: 84.64/100
- *Supervisor:* Prof. Dr. Ningping Huang, State Key Laboratory of Bio-electronics (SKLB)

Harvard Medical School **Cambridge, MA, U.S.** **Aug. 2019 – Nov. 2019**

- **Research Trainee,** Laboratory of Engineered Living System
- *Supervisor:* Dr. Yu Shrike Zhang

Hangzhou Huamai Medical Devices Co., Ltd. **Hangzhou, China** **July 2020 – Present**

- **R&D Engineer,** animal source products

TECHNICAL SKILLS

- **Research Interests:** Bio-fabrication, Regenerative Medicine, Biomaterials
- **Professional:** Electrospinning, 3D bioprinting, Modeling, Stainings, ELISA, Animal models with bone/nerve defects, Isolation and cultivation of cardiomyocytes, Decellularization
- **Programming/Software:** Python, C++, HTML; 3ds Max, Blender, 3D Slicer, Adobe creative set

RESEARCH EXPERIENCE

Bone Graft Material **Huamai Medical Devices Co., Ltd.** **Dec. 2020 – Present**

- Outline: Be responsible for the protocols writing and communication with testing agencies of essential tests for NMPA/FDA 510(k) application, i.e., biological evaluation, performance tests, validation of viral inactivation, Immunogenic evaluation, etc.

Spongious Bone Substitute **Huamai Medical Devices Co., Ltd.** **Dec. 2020 – Present**

- Outline: Developed the product for periodontal bone defects filling, and designed decellularization strategies for spongy bone
  - The decellularization ensured a <4ng/mg residue of DNA, <5% residue of lipid, good retention of collagen

Handheld Bioprinting **BWH, Harvard Medical School** **Aug. 2019 – Nov. 2019**

- Advisor: Dr. Yu Shrike Zhang
- Outline: Used custom-made handheld bioprinter to print cell-laden porous hydrogel for skin repair

Injectable Hydrogel **BWH, Harvard Medical School** **Aug. 2019 – Nov. 2019**

- Outline: Designed and fabricated injectable shape memory hydrogel using two water phase emulsion
  - Achieved >96% cell viability cultured inside the hydrogel
  - The printed hydrogel with elaborate shapes can withstand more than 50 times of squeezes and extrusions through 16G needle, with negligible cell damage

3D Cardiac Tissue Construction **SKLB, SEU** **Aug. 2018 – June 2020**

- Advisor: Prof. Ningping Huang
- Master's Thesis Project, funded by National Science Foundation of China (NSFC) [No. 6507030165]
- Outline: Constructed 3D cardiac tissue models with biomimetic multi-layer anisotropic structure, based on layers of suspended aligned nanofiber films encapsulated by collagen hydrogel
  - Designed an efficient electrospinning receiver for suspended nanofibers with >95% alignment
  - Achieved high level of cardiomyocytes (CMs) alignment 1d after seeding
  - Reached synchronized CMs contraction rate (1.5-2Hz) 2 days after cell seeding, a maximum beating velocity of 7000 μm/s, and centripetal contraction similar with natural cardiac tissue

Long Bone Defect Repair **SKLB; Laboratory Animal Center, SEU** **Aug. 2016 – June 2017**

- Bachelor's Thesis Project, part of Marie Curie International Incoming Fellowship Return Phase [No.913097]

- Outline: Promoted almost 100% rabbit radius bone regeneration used newly designed 3D hybrid scaffolds after 12 weeks, in vivo; Assessed bone marrow infiltration and angiogenesis
  - — Assembled hybrid scaffolds by wrapping electrospinning nanofiber (200nm) film around anti-opal porous (400μm, >95% interconnectivity) scaffolds
  - — Operated on 30 rabbits (5 groups) to build 15mm radius defect and implant scaffolds
  - — Achieved 40% bone regeneration on 4 weeks, and >90% bone regeneration on 12 weeks postoperative, tested by X-Ray, CT, SEM/EDS, H&E/IHC staining, mechanical tests

POCT for Vascular Inflammation **Nanoeast Biotech Co., Ltd.** **Oct. 2016 – May 2017**

- Advisor: Prof. Yu Zhang.
- National College Innovation Project [No.201610286067], *Outstanding SRTP Project*
- Outline: Developed fluorescence immunochromatography strips co-testing Hcy and hs-CRP for early vascular inflammation diagnosis, based on Sandwich ELISA and Competition ELISA

PUBLICATIONS

- Ying G, Manríquez J, Wu D, **Zhang J**, Jiang N, Maharjan s, Medina D H, Zhang Y S. "An Open-Source Handheld Extruder Loaded with Pore-Forming Bioink for in situ Wound Dressing". Materials Today Bio, 2020:100074.
- Ying G, Jiang N, Parra C, Tang G S, **Zhang J Y**, Wang H J, Chen S X, Huang N P, Xie J W, Zhang Y S. "Bioprinted Injectable Hierarchically Porous Gelatin Methacryloyl Hydrogel Constructs with Shape-Memory Properties". Advanced Functional Materials, 2020, 30.
- **J. Zhang,** N. Huang. "Biomimetic Construction of 3D Cardiac Tissue Based on Aligned Nanofibers/Hydrogel Composite Scaffolds". 3rd Workshop on Microfluidic Chips and Tissue Engineering, Nanjing, China (2019).
- **J. Zhang,** L. Lv, X. Zhang, N. Huang. "Effect of Three-dimensional Porous Composite Scaffold Applied in Bone Defect Repair". 2nd Workshop on Microfluidic Chips and Tissue Engineering, Nanjing, China (2018).
- L. Lv, **J. Zhang,** X. Zhang. N. Huang. "A Biomimetic 3D Scaffold for Long Bone Repair". 5th TERMIS World Congress, Kyoto, Japan (2018).
- N. Zhang, X. Li, Q. Xiao, K. Qu, **J. Zhang**, N. Huang. "Three-dimensional cell culture and differentiation of bone marrow-derived mesenchymal stem cells based on gradient hydrogel" [J], Journal of Southeast University (Med Sci Edi), 2018.47(4):560-565

AWARDS & HONORS

- *Top 7%* *Outstanding Staff Award for 2020* (2021)
- *Top 10%* *Graduate Student Merit Awards,* Southeast University (2018)
- *Top 20%* *The Second Prize of Learning Scholarship,* SEU (2019, 2018, 2017)
- *Top 2%* *Outstanding SRTP Project,* SEU (2017)
- *Top 1%* *Course Award* in Probability & Statistic, SEU (2015)
- *Top 2%* *Advanced Individual of Cultural and Art Activities,* SEU (2014)
- *Top 5%* *Outstanding Cadres of Student Union,* School of BME, SEU (2014)

ADDITIONAL EXPERIENCE

- *Member,* Graduate Student League of Volunteer, SEU (2017 - 2019)
- *Minister,* Culture and Entertainment Department of Student Union, School of BME, SEU (2014 - 2016)
- *1st Place,* the "*SanRening*" Orienteering Competition, SEU (2017)
- *4th Place*, Cheerleading Competition, SEU (2014)
- *3rd Place,* English Dubbing Contest, SEU (2013)
- *Hobbies*: Sci-Fi, Modeling, Video Games, CG Painting, Piano, Cello, Billiards

REFERENCE

Ningping Huang, Ph.D., Prof. **Nanjing, China**

- Professor, School of Biological Science and Medical Engineering, Southeast University
- *Email: nphuang@seu.edu.cn*

Yu Shrike Zhang, Ph.D. **Cambridge, MA, U.S.**

- Assistant Professor, Department of Medicine, Harvard Medical School.
- Associate Bioengineer, Division of Engineering in Medicine, Brigham and Women's Hospital
- *Email: yszhang@research.bwh.harvard.edu*