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ZHANG JINGYI | RESUME

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EDUCATION

Southeast University (SEU, 985 Project) **Nanjing, China** **Aug. 2017 - June 2020**

- **M.S. in Biomedical Engineering,** Bioelectronics track
- Current GPA: 87.68/100, *Supervisor:* Prof. Dr. Ningping Huang

Southeast University **Nanjing, China** **Aug. 2013 - June 2017**

- **B.E. in Biomedical Engineering,** Bioelectronics track
- GPA: 84.64/100, *Supervisor:* Prof. Dr. Ningping Huang

RESEARCH EXPERIENCE

Handheld Bioprinting **Harvard Medical School** **Aug. 2019 - Present**

- Advisor: Dr. Yu Shrike Zhang, Dr. Guoliang Ying
- Outline: Using self-designed handheld bioprinter to print cell-laden porous hydrogel for skin repair

Shape-memory Hydrogel **Harvard Medical School** **Aug. 2019 - Present**

- Advisor: Dr. Yu Shrike Zhang
- Outline: Design and fabricated a type of injectable shape memory hydrogel using GelMA/PEO 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 14G needle, with negligible cell damage

Gradient Hydrogel **State Key Laboratory of Bioelectronics (SKLB), SEU** **Mar. 2019 - Present**

- Advisor: Prof. Ningping Huang
- Outline: To apply 3D bioprinting to form continuous gradient hydrogel scaffolds for inducing at least 2 types of cells ingrowth by layers

3D Cardiac Tissue Construction **SKLB, SEU** **Aug. 2018 - Present**

- Master's Thesis Project, funded by National Science Foundation of China (NSFC) [No. 6507030165]
- Advisor: Prof. Ningping Huang
- 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: monolayer (>95%) and orthogonal double-layer (>90%); and sarcomere arrangement and CX43 expression
  - — Reached synchronized CMs contraction rate (90-100times/min) 2 days after seeding

Sciatic Nerve Regeneration **SKLB, SEU** **Dec. 2018 - May 2019**

- Advisor: Prof. Ningping Huang, Dr. Xiaofeng Zhang
- Outline: Fabricated conductive nerve conduits with aligned PHBV/CNTs nanofiber film and keratin for rat's sciatic nerve defect (1cm) repair
  - — Advised an undergraduate on this graduation project and fabricated 3 groups of nanofiber films
  - — Realized 80% defect repair 8 weeks postoperative

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

- Bachelor's Thesis Project, funded by Marie Curie International Incoming Fellowship Return Phase [No.913097]
- Advisor: Prof. Ningping Huang, Dr. Lanxin Lv
- 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**

- National College Innovation Project [No.201610286067]; SRTP Project, SEU [No.16112020], Team Member
- *Outstanding SRTP Project Award*, Advisor: Prof. Yu Zhang.
- Outline: Developed fluorescence immunochromatography strips co-testing Hcy and hs-CRP for early vascular inflammation diagnosis, based on Sandwich ELISA and Competition ELISA
  - — Devised Hcy detection method suitable for POCT product (catalytic synthesized Hcy into SAH)
  - — Fabricated hs-CRP POCT strip with a good linearity (R^2=0.9851) within target range (0.3-10mg/L), 3mins after sample addition

PUBLICATION

- G. Ying, N. Jiang, C. Parra, **J. Zhang**, N. Huang, Y. S. Zhang*. "3D Bioprinting of Injectable Stem Cell-laden Porous hydrogel Constructs with Shape-Memory Properties". *In preparation* (2019)
- **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. P. 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

TECHNICAL SKILLS

- **Research Interests:** Bio-fabrication, Regenerative Medicine, Health Tech
- **Professional:** Electrospinning, 3D bioprinting, IF/IHC staining, Animal models with bone/nerve defects, Isolation and cultivation of cardiomyocytes, Molecular biological techniques
- **Programming:** Python, C++, HTML
- **Software:** 3ds Max, Blender, 3D Slicer, ImageJ, Origin, LaTeX, Ae

AWARDS & HONORS

- *Top 10%* *Graduate Student Merit Awards,* Southeast University (2018)
- *Top 15%* *The Second Prize of Learning Scholarship,* SEU (2019,2018, 2017)
- *Top 2%* *Outstanding SRTP Project Award,* 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 - Present)
- *Minister,* Culture and Entertainment Department of Student Union, School of BME, SEU (2014 - 2016)
- *1st Place,* the "*Sanrenxing*" Orienteering Competition, SEU (2017)
- *4th Place,* Cheerleading Competition, SEU (2014)
- *3rd Place,* English Dubbing Contest, SEU (2013)
- *Recognition Award,* Bow Craft and Fletching Contest, SEU (2013)
- *Hobbies:* Dance, Piano, Handcraft, Modeling & Animation, Video Games, Sci-Fic, Billiards, Boxing

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*