

# SHUYANG BIAN

[Google Scholar Profile](#) 

[GitHub Profile](#) 

## Education

<b>Duke-NUS Medical School</b> <i>MD Programme</i>	<i>Jul 2024 – Present</i>
<b>Emory University</b> <i>Biology (Highest Honors) and Computer Science (GPA: 3.97)</i>	<i>Aug 2021 – May 2024</i>
<b>New York University</b> <i>(GPA: 3.96)</i>	<i>Aug 2020 – June 2021</i>

## Research Experience

<b>Student Researcher, Genomic Analysis in Paediatric Genetics and Metabolism</b> <i>National University of Singapore — Supervisor: A/Prof Samuel Chong Siong Chuan</i>	<i>Singapore</i> <i>Jan 2025 – Present</i>
--	---

- Improved CHRA-B, an R-based chromosome analysis in adding new way of smoothening figure representation and efficiency enhancing mechanisms
- Improved efficiency in SNP processing based on Epi2me's "Wf-human-variation" algorithm
- Researched on improved methods of analyzing nucleotide repeat expansion

<b>Natural Language Processing (NLP) Suite Developer, Student Researcher</b> <i>Emory University — Supervisor: Prof. Roberto Franzosi</i>	<i>Atlanta, GA</i> <i>Sep 2022 – Mar 2025</i>
--	--

- Developed visualization options and improved code reliability in NLP Suite scripts.
- Improved algorithm efficiency, including RDMS database queries, caching system implementation, and visualization algorithms.
- Assisted in NLP Suite installation and debugging as a Technology Assistant for LING 190 & LING 446W.

<b>Renal Division Researcher</b> <i>Emory University School of Medicine — Supervisor: Dr. Hui Cai</i>	<i>Atlanta, GA</i> <i>Jan 2022 – May 2024</i>
--	--

- Conducted in vitro experiments on muscle-kidney cell crosstalk using protein blotting and cell culture.
- Investigated renal fibrosis using immunohistology images.
- Conducted Honors Thesis project on the potential use of BMS as a Big-Potassium (BK $\alpha$ ) Channel Opener for ameliorating Chronic Kidney Diseases, with Highest Honors.

<b>Humanities Research Lab</b> <i>New York University — Supervisor: Prof. Heather Ruth Lee</i>	<i>New York, NY</i> <i>June 2021 – Aug 2021</i>
---	--

- Provided insights into historical patterns of occupational changes in New York City.
- Designed a batch process to pre-process data and map occupations into broader categories.
- Transformed data representation based on Geographic Information System (GIS).

## Employment

<b>Emory Student Technology Support</b>	<i>Sep 2021 – May 2024</i>
---	----------------------------

- Configured campus network and software suites for student and staff devices.
- Performed troubleshooting for software and hardware problems.
- Collaborated on fixing operating systems, hardware drivers, unbootable devices, and screen damage.

## Service

<b>Emory On-Campus Advanced Emergency Medical Technician</b>	<i>Aug 2022 – May 2024</i>
<b>Learning Assistant of BIOL 120, BIOL 142L</b>	<i>Sep 2022 – Apr 2024</i>
<b>Teaching Assistant for LING446W, LING190</b>	<i>Sep 2023 – Apr 2024</i>

## Extracurricular Experience

**Participant & Student Leader, International Collegiate Programming Contest, North-American Division (NAC-ICPC)**

*Jul 2022 – Mar 2024*

## Skills

**Biotechnology:** Cell culture, mice care and surgery, Western Blot, immunohistochemistry, PCR (basic), mitochondrial functioning experiments.

**Coding:** Python (Pandas, Matplotlib, Numpy, Tensorflow), Java, SQL (Postgres), SQL & No-SQL (MongoDB), Javascript (React, Node.js), C++, C, Docker

**Languages:** English, Chinese, Spanish, Japanese.

## Works in Progress

**Clinical Outcomes in Acute Myocardial Infarction Patients with Lean Diabetes: A National Registry-Based Study**

*June 2025*

Ching-Hui Sia, Junsuk Ko, et al. *in progress*

**Decoding the Chinese Government Work Report (CGWR): A Natural Language Processing (NLP) Approach**

*April 2025*

R Franzosi, *S Bian* *Quality & Quantity*, submitted for peer review

## Works and Publications

**Identification of hub fatty acid metabolism-related genes and immune infiltration in IgA nephropathy**

*Dec 2024*

X Qian, *S Bian*, et al.

*Renal Failure*

[10.1080/0886022X.2024.2427158](https://doi.org/10.1080/0886022X.2024.2427158) [↗](#)

**Novel Role of BK-Channel Activation in Ameliorating Cardiac Fibrosis in the Ischemia-Reperfusion (IR)-Induced Heart Failure Mouse Model**

*Oct 2024*

X Luo, Z Liu, *S Bian*, et al.

*American Society of Nephrology (ASN) Poster Presentation*

**Activation BK channel ameliorates uremic cardiomyopathy by attenuating oxidative stress**

*Apr 2024*

*S Bian*, Z Liu, et al.

*American Physiological Society (APS) Poster Presentation*

**NLP Analysis of Inaugural and State of the Union Discourse**

*Apr 2024*

Kevin Huang, *S Bian*, Roberto Franzosi

*1st SouthNLP Symposium*

**Decoding the CGWR: A Natural Language Processing Approach**

*Apr 2024*

*S Bian*, Roberto Franzosi

*1st SouthNLP Symposium*

**Electric acupuncture mimics exercise to promote myogenesis, angiogenesis and neurogenesis**

*Nov 2023*

Z Su, M Yu, Y Huang, B Wang, J D Klein, Y Wang, *S Bian*, X Chen, H Cai and X H Wang

*Accepted at Journal of Biotechnology and Biomedicine*

**SMN haploinsufficiency promotes ischemia / reperfusion-induced AKI-to-CKD transition by endoplasmic reticulum stress activation**

*Oct 2023*

X. Qian, J. Li, *S. Bian*, et al.

*FASEB Journal*

[10.1096/fj.202300754R](https://doi.org/10.1096/fj.202300754R) 

**Activation BKa channel prevented high glucose-induced oxidative stress in human proximal tubular cells**

2023

X Luo, **S Bian**, Y Huang, F Hassounah, Q Yue, C John, X Wang, H Cai

*American Society of Nephrology (ASN) Abstract*

**Electric acupuncture mimics exercise to ameliorate muscle atrophy by promoting angiogenesis and neurogenesis in CKD**

2023

Z Su, **S Bian**, X Luo, X Wang, H Cai

*American Society of Nephrology (ASN) Abstract*

**Re-imagining the Future of Forest Management - An Age-Dependent Approach towards Harvesting**

2023

**S Bian**, Y Xie, F Zhang

*arXiv preprint*

[arXiv:2308.03198](https://arxiv.org/abs/2308.03198) 

**The Effects of BK channel activation on cardiac fibrosis in chronic kidney disease**

2022

Y Huang, M Diop, **S Bian**

*American Society of Nephrology (ASN) Abstract Supplement*

**Diagnosis of Alzheimer's Disease using Structural MRI and Convolution Neural Network**

2020

**S Bian**

*E3S Web of Conferences*

[10.1051/e3sconf/202018503037](https://doi.org/10.1051/e3sconf/202018503037) 

## Oral Talks

---

**Decoding Chinese Government Work Report through Natural Language Processing (NLP)**

Mar 2024

*42nd SouthEastern Undergraduate Sociology Symposium (SEUSS)*

**BKa Channel Opener Prevents TGF-Induced Oxidative Stress in H9C2 Cardiomyocytes**

Nov 2023

*Emory School of Medicine Research Day*

**The impact of BMS on Aristolochic acid-induced renal fibrosis**

Aug 2023

*Emory Summer Undergraduate Research Program (SUPERR)*