

Xicheng Yang

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EDUCATION

University of Wisconsin-Madison

B.S., Biomedical Engineering, Certificate in Computer Science

Sep. 2023 – May 2027

Madison, WI

RESEARCH EXPERIENCE

UW-Madison Hu CIPT Lab

Undergraduate Student Researcher

Mar. 2024 – Oct. 2025

Onsite

- Conducted research on programmable immunoprototics, splittable bio-systems, personalized cancer vaccines, and checkpoint-blockade immunotherapy.
- Performed cell culture and in vivo experiments, including tumor modeling and resection, IVIS imaging, and protein immunoassays.
- Managed data analysis and figure production, and contributed to multiple publications, including a paper in Proceedings of the National Academy of Sciences (PNAS).
- Delivered an oral presentation on this research at the *2025 Biomedical Engineering Society (BMES) Annual Meeting*

UW-Madison Campagnola Laboratory

Undergraduate Student Researcher

Sep. 2025 – Now

Onsite

- Conducted research in two-photon laser microfabrication for generating 3D micro-structured hydrogels and biomimetic extracellular matrix (ECM) models for ovarian cancer migration studies.
- Operated femtosecond laser systems, including laser stabilization, galvo calibration, z-mapping, and multi-layer pattern writing. Assisted in spheroid formation of ovarian cancer cells for migration assays.
- Developed ovarian cancer cell migration tracking pipelines using Python, FIJI, StarDist, and self-training deep-learning approaches.

Nanjing Medical University

Student Researcher (Summer & Winter Breaks)

May. 2022 – Aug. 2025

Hybrid

- Conducted research with graduate students at NJMU Pharmaceutical Analysis Department, contributed to a multi-year project focused on discovering PSD95–nNOS uncoupling agents for stroke and neurodegenerative disease treatment.
- Gained experience in bioconjugation chemistry, protein production workflows, and fluorescence-based assays.
- Supported the preparation of multiple publications, including experimental design, data analysis, figure generation, and revision responses. Contributing to a publication in Chemical Engineering Journal.
- Delivered an oral presentation on this research at the *2025 National Symposium on Functional and Bioactive Plant Compounds Research and Resource Mining*.

Suzhou Curemed Biopharma Technology

Research Intern

Jul. 2025

Onsite

- Worked as a student research intern at a company producing purified mRNA and protein, participating in the full production workflow.
- Learned and applied molecular cloning, protein expression, and multiple protein purification methods. Verified product quality using SDS-PAGE, Western blot, and Coomassie staining.

PUBLICATIONS

- Yuan, S., **Yang, X.**, et al. (2025). Programmable immunoprototics orchestrate anti-tumor immune response with Pin1 inhibition for pancreatic cancer treatment. *Proceedings of the National Academy of Sciences*, 122(34) e2507711122, <https://doi.org/10.1073/pnas.2507711122>

- Peng, T.[#], Lu, X.[#], Jin, Y.[#], **Yang, X.**, et al. (2025). One-stone-four-birds strategy to construct magnetic mesoporous nano-ratio fluorescence sensor for efficient discovery of PSD95-nNOS uncouplers. *Chemical Engineering Journal*, 509, 161330. <https://doi.org/10.1016/j.cej.2025.161330>
- Yuan, S., Bremmer, A., **Yang, X.**, et al. (2025). Microbiota metabolism and immune regulation: From mechanisms to immunotherapeutic applications in cancer. *Seminars in Cancer Biology*, 117, 168-183. <https://doi.org/10.1016/j.semcancer.2025.11.023>
- Yuan, S., Bremmer, A., **Yang, X.**, et al. (2024). Splittable systems in biomedical applications. *Biomaterials Science*, 12(16), 4103–4116. <https://doi.org/10.1039/d4bm00709c>
- Lu, X.[#], **Yang, X.**[#], et al. (2025). A novel extract of Dendrobium flexicaule flower: volatile components and neuroprotective potential. *The Journal of Supercritical Fluids*, 229, 106840. <https://doi.org/10.1016/j.supflu.2025.106840>
- Li, Z., Wang, Y., Mo, F., Wolter, T., Hong, R., Barrett, A., Richmond, N., Liu, F., Chen, Y., **Yang, X.**, et al. (2025). Engineering pyroptotic vesicles as personalized cancer vaccines. *Nature Nanotechnology*, 20(8), 1108–1118. <https://doi.org/10.1038/s41565-025-01931-2>

CONFERENCE PRESENTATIONS

- “Harnessing Engineered Probiotics to Regulate Desmoplasia and Improve Immunotherapy by Targeting Pin1”, Biomedical Engineering Society (BMES) Annual Meeting, San Diego, CA, October 2025
- “One-stone-four-birds strategy to construct magnetic mesoporous nano-ratio fluorescence sensor for efficient discovery of PSD95-nNOS uncouplers”, National Symposium on Functional and Bioactive Plant Compounds Research and Resource Mining, Lijiang, China, July 2025

DESIGN EXPERIENCE

Biodegradable Metered Dose Inhaler (MDI) Mouthpiece Jan. 2025 – May. 2025

- Designed biodegradable inhaler mouthpiece using PLA/PHA polymers. Fabricated and tested prototypes via 3D printing + CNC machining; validated actuator performance and material degradation behavior.

Laser Enucleation of Prostate (LEP) Training Model Sep. 2025 – Dec. 2025

- Developed anatomically accurate prostate model using silicone gels and 3D-printed molds for surgical training simulation. Tuned mechanical properties to approximate tissue stiffness and enable realistic surgical feedback.

Smart Walker Rehabilitation System Jan. 2026 – Now

- Built embedded sensing system using Arduino, Raspberry Pi, load cells, and mmWave sensors for real-time gait and weight monitoring. Developed data acquisition and telemetry pipeline for rehabilitation assessment.

UNIVERSITY SERVICE

UW-Madison Biomedical Student Advisory Committee Sep. 2024 – Now

Member

Onsite

- Provided feedback to faculty about the design courses and curriculum
- Served as peer advisors and mentors to the freshman

SKILLS

- **Dry Lab Skills:**
 - Programming: Python, Matlab, Java; Arduino (C/C++); Systems & DevOps.
 - Image Processing: Fiji, deep learning-based python packages: Stardist, Qupath, ultrack.
 - Engineering: 3D printing, CNC machining, material testing, embedded systems.
 - Scientific Communication & Design: BioRender, Adobe Photoshop, Lightroom, Illustrator.
- **Wet Lab Skills:**
 - Molecular cloning and bacterial culture.
 - Protein expression, purification, and characterization.
 - Cell culture and in vivo tumor modeling.
 - Fluorescence-based assays and imaging.
 - Laser microfabrication.