

## Fangchen Liu

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### Current Position

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Postdoctoral Scholar

July 2023 - present

California Institute for Quantitative Biosciences at UC Berkeley, Berkeley, CA

### Education

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Ph.D. | Biological and Environmental Engineering

May 2023

Cornell University, Ithaca, NY

B.S. Summa Cum Laude | Materials Engineering

May 2017

Rensselaer Polytechnic Institute, Troy, NY

### Scholarship

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#### Publications

1. Liu, F.,<sup>+</sup> Gaul, L.,<sup>+</sup> Shu, F., Vitenson, D., and Wu, M., 2022. **Microscope-based light gradient generation for quantitative studies of photosynthetic micro-organisms at cell length scale.** *Lab on a Chip*, 22, pp.3138-3146.
2. Liu, F., Giometto, A., and Wu, M., 2021. **Microfluidic and mathematical modeling of aquatic microbial communities.** *Analytical and Bioanalytical Chemistry*, 413, pp.2331-2344.
3. Liu, F., Yazdani, M., Ahner, B.A. and Wu, M., 2020. **An array microhabitat device with dual gradients revealed synergistic roles of nitrogen and phosphorous in the growth of microalgae.** *Lab on a Chip*, 20(4), pp.798-805.

#### Posters and Oral Presentations

1. Liu, F., Gaul, L., Yazdani, M., Vitenson, D., Ahner, B.A. and Wu, M., Microfluidic platform to study multi-resource-controlled growth of photosynthetic microorganisms for a sustainable future. *CNF Annual Meeting*. (poster) Oct. 2022, Ithaca, NY.
2. Liu, F., An overview on microfluidics for biology and biotechnology. *CNF Technology & Characterization at the Nanoscale Short Course*. (oral presentation) June 2022. Ithaca, NY.
3. Liu, F., Gaul, L., Yazdani, M., Ahner, B.A. and Wu, M., Effects of light and nutrients on the growth of algal cells revealed by a microfluidic platform. *APS March Meeting*. (oral presentation) March 2022. Chicago, IL.
4. Liu, F., Yazdani, M., Wagner, N.G., Ahner, B.A. and Wu, M., Synergistic effects of nitrogen and phosphorous on the growth of algal cells revealed by a microfluidic platform. *APS March Meeting*. (oral presentation) March 2021. Virtual Conference.
5. Liu, F., Wagner, N.G., Yazdani, M., Vitenson, D., Kim, B.J., Ahner, B.A. and Wu, M., An array microhabitat platform with environmental control for studying harmful algal blooms. *CNF Annual Meeting*. (poster) Oct. 2020, Ithaca, NY.
6. Liu, F., *CNF Annual Meeting*. (poster) Sept. 2019, Oct 2018. Ithaca, NY.
7. Liu, F., *ASABE Annual International Meeting*. (oral presentation) July 2018. Detroit, MI.

## Manuscript in Submission

1. Liu, F., Gaul, L., Giometto, A., and Wu, M., 2023. Colimitation of light and nitrogen on algal growth revealed by an array microhabitat platform.

## Technical and Language Skills

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- Micro/Nanofabrication: Photolithography, Soft lithography, MVD, 3D printing, Laser cutting.
- Imaging: Epi-fluorescence microscopy, Confocal microscopy, Image analysis.
- Biotechnology: Cell culture, Microbiology.
- Computer-aided design: Siemens NX, AutoCAD, COMSOL Multiphysics.
- Programming languages and mathematical packages: MATLAB, Python.
- Materials characterization: Mechanical test, SEM, NMR, UV-vis spectroscopy, Rheometry.

## Courses and Programs

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Colman Inclusive Leadership Program @ Cornell	Summer 2022
Qbio Summer Research Course: Microbial Interactions @ KITP, UCSB	Summer 2021

## Teaching and Mentoring

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Lab instructor, BEE 4550 Bio-inspired Engineering	Fall 2019, Fall 2020, Fall 2021, Fall 2022
M.Eng and undergrad research mentor	Summer 2019 - Spring 2020
Capstone project mentor, BEE 4500 Bioinstrumentation	Spring 2019, Spring 2020, Spring 2022
International Teaching Assistant Program at Cornell	Spring 2018

## Honors and Awards

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Outstanding TA Award of College of Agriculture and Life Sciences, Cornell University	Spring 2023
Poster 3 <sup>rd</sup> Place, 2019 BEE Research Symposium	Spring 2019
Best Poster Award, 2018 CNF Annual Meeting	Fall 2018
Member of Alpha Epsilon, Honor Society of Agriculture, Food, and Biological Engineering	Fall 2018
Member of Alpha Sigma Mu, Honor Society of Materials Science and Engineering	Spring 2016

## References

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- Prof. Mingming Wu ([mw272@cornell.edu](mailto:mw272@cornell.edu)), Department of Biological and Environmental Engineering, Cornell University
- Prof. Beth A. Ahner ([baa7@cornell.edu](mailto:baa7@cornell.edu)), Department of Biological and Environmental Engineering, Cornell University
- Prof. Andrea Giometto ([giometto@cornell.edu](mailto:giometto@cornell.edu)), School of Civil and Environmental Engineering, Cornell University