Jieming (Jimmy) Yan

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Education:

University of Texas at Austin, Austin, TX. 01/2020 - 05/2025 (Anticipated)
Ph.D. in Materials Science and Engineering
- Dissertation Title: Design of Ionic Liquid-Based Additives for Integration with Modern Lubrication Systems

University of California, San Diego, La Jolla, CA. 09/2015 - 06/2019
B.S *cum laude* in NanoEngineering with Materials Science Focus

Research Experience:

Texas Materials Institute, University of Texas at Austin 01/2020 - Present
Graduate Research Assistant
Principal Investigator: Filippo Mangolini

- Study the interactions between ionic liquids, polymer composite particles, and surfaces under friction.
- Perform synthesis and characterization of novel ionic liquids and ionic liquid/polymer composite particles.
- Examine physical and chemical properties of surfaces under high-pressure sliding using a wide range of microscopy and spectroscopic analysis methods.

Department of Nanoengineering, University of California, San Diego 01/2018 - 07/2019
Undergraduate Research Assistant
Principal Investigator: Joseph Wang

- Assist in the design and fabrication of small catalytic micromotors.
- Record, analyze, and process data for publication.
- Introduced and implemented lab-wide protocols to improve digital media processing.

Awards:

First Place Poster, Gordon Research Conference on Tribology 06/2024

University Graduate Continuing Fellowship, University of Texas at Austin 2024 - 2025

Professional Development Award, University of Texas at Austin 12/2023

Publications:

1. **Yan, J.,** Lak, S. N., Pentzer, E. B., Mangolini, F. Multi-Component Lubricant Additives Derived from Pickering Emulsion-Templated Ionic Liquid Microcapsules. *Journal of Molecular Liquids, 422,* 126917.
2. **Yan, J.**, & Mangolini, F. (2023). Polymer-Encapsulated ionic liquids as lubricant additives in non-polar oils. *Journal of Molecular Liquids, 383,* 122089. https://doi.org/10.1016/J.MOLLIQ.2023.122089
3. **Yan, J.**, Lien, H. M., & Mangolini, F. (2023). Linking Molecular Structure and Lubrication Mechanisms in Tetraalkylammonium Orthoborate Ionic Liquids. *Tribology Letters*, *71*(2), 1–14. https://doi.org/10.1007/S11249-023-01714-7
4. **Yan, J**., Li, Z., Ye, J. Z., Mangolini, F. *Bioinert Conversion Coating of Stainless Steel via Deposition of Thin ZnO Layer,* **In Preparation**
5. Li, Z., Ye, J. Z., **Yan, J.**, Molina, N., Lien, H. M., Chrostowski, R., Jaye, C., Fischer, D. A., Lin, J., & Mangolini, F. (2022). Effect of tribologically-induced changes in surface termination of silicon-containing diamond-like carbon coatings on the resistance to biomolecule adsorption. *Carbon*, *199*, 132–140. https://doi.org/10.1016/J.CARBON.2022.07.043
6. **Yan, J.**, & Mangolini, F. (2021). Engineering encapsulated ionic liquids for next-generation applications. *RSC Advances*, *11*(57), 36273–36288. https://doi.org/10.1039/D1RA05034F
7. Karshalev, E., Silva-Lopez, C., Chan, K., **Yan, J.**, Sandraz, E., Gallot, M., Nourhani, A., Garay, J., & Wang, J. (2021). Swimmers Heal on the Move Following Catastrophic Damage. *Nano Letters*, *21*(5), 2240–2247. https://doi.org/10.1021/acs.nanolett.0c05061
8. Karshalev, E., **Yan, J.**, Campos, I., Sandraz, E., Li, J., & Wang, J. (2020). Small-Scale Propellers Deliver Miniature Versions of Themselves. *Small*, *16*(17), 2000453. https://doi.org/10.1002/smll.202000453

Conference Presentations:

Oral Presentations:

- **Encapsulated Ionic Liquids as Lubricant Additives**, *STLE Tribology Frontiers,* Cleveland, OH. Nov. 2023
- **Encapsulation of Ionic Liquids for Tribological Applications**, *Gordon Research Conference on Tribology*, Lewiston, ME. Jun. 2022

Posters:

- **Understanding the Links Between Molecular Structure and Lubrication Mechanisms of Ammonium orthoborate Ionic Liquids**, *Gordon Research Conference on Tribology*, Lewiston, ME. Jun. 2024
- **Tribological Performance of Ammonium Orthoborate Ionic Liquids**, *Gordon Research Seminar on Tribology*, Lewiston, ME. Jun. 2022

Teaching Experience:

University of Texas at Austin, Austin, TX.

Research Experience for Teachers Program 06/2022-07/2022,
Graduate Student Mentor 06/2023-07/2023

- Mentored K-12 teachers over 6 weeks to gain hands-on research experience and develop classroom modules based on research topics

Undergraduate Materials Science Lab 08/2020-05/2021
Teaching Assistant

- Assisted sections of 15+ students over 2 virtual semesters