

EDUCATION

University of Michigan	Ann Arbor, MI
PhD, Chemical Engineering	2020 – 2025*
MSE, Chemical Engineering	2020 – 2022
Cleveland State University	Cleveland, OH
M.S (4+1), Biomedical Engineering	2019 – 2020
B.S, Chemical Engineering, Minor: Mathematics	2015 – 2019
Magna Cum Lade	

RESEARCH EXPERIENCE

University of Michigan, Chemical Engineering	Ann Arbor, MI
Graduate Research Assistant	2020 – Present
Research Advisor: Dr. Joerg Lahann, Professor	
<ul style="list-style-type: none">• <u>Project 1</u>: Surface-stabilization of protein nanoparticles for gene therapy.• <u>Project 2</u>: Encapsulation of silicon quantum dots inside protein nanoparticles for a biocompatible imaging fluorescent probe.	
	Cleveland, OH
Cleveland State University, Chemical and Biomedical Engineering	2019 – 2020
Graduate Research Assistant	
Research Advisor: Dr. Geyou Ao, Assistant Professor	
<ul style="list-style-type: none">• <u>Project Title</u>: Synthesis of single-wall carbon nanotubes (SWCNTs)-hosted organic color centers through phenyl azide photochemistry of biomimetic glycopolymers.<ul style="list-style-type: none">○ Lead developer of engineered organic color centers through covalent functionalization of pure-chirality SWCNT species using glycopolymers with carbohydrate functionalities.○ Determined the effect of surface functionalities of SWCNTs such as DNA and surfactant coatings on optical properties of color centers.○ Selected to represent Cleveland State University at the Global Grand Challenges Summit in London, UK based on excellence in nanomaterials research.	
National Institute of Standards and Technology, Materials Measurement Laboratory	Gaithersburg, MD
Summer Undergraduate Research Fellow	May 2019 – August 2019
Primary Investigators: Dr. Gili Kaufman, Dr. Anthony Kotula	
<ul style="list-style-type: none">• <u>Project Title</u>: N-acetyl Cysteine (NAC) as a revitalizing drug for toxicity-affected dental pulp cells.<ul style="list-style-type: none">○ Evaluated the potential of NAC as a rescuing agent in pulp capping materials and bioprinting of a multifunctional organic matrix.○ Cultured dental pulp mesenchymal stem cells in 2D and 3D systems and evaluated the accumulation of the hydroxyapatite (HA) mineral crystals.○ Characterized the HA mineral crystals in organic matrix by utilizing Raman spectroscopy and staining/imaging techniques.	
Cleveland State University, Chemical and Biomedical Engineering	Cleveland, OH
Undergraduate Research Assistant	2017 – 2019
Research Advisor: Dr. Geyou Ao, Assistant Professor	
<ul style="list-style-type: none">• <u>Project Title</u>: Surface engineering of chirality-pure carbon nanotubes.<ul style="list-style-type: none">○ Investigated DNA-surfactant exchange kinetics under a tight schedule.○ Collaborated with multidisciplinary research groups at the Cleveland Clinic-Lerner Research Institute and the department of chemistry at Cleveland State University.○ Trained an undergraduate and a graduate student researcher in standard lab procedures.	

- Led lab tours for middle school and high school girls.
- Project Title: Dispersion stability of DNA-wrapped SWCNTs in biological media.
 - Successfully purified synthetic SWCNT mixtures into semiconducting enriched fractions and single species using short DNA recognition sequences in polymer aqueous two-phase systems.
 - Characterized DNA-SWCNT hybrids in RPMI-only and fetal bovine serum-containing cell culture media by monitoring spectral changes in absorption and fluorescence emission and pH over time.

PUBLICATIONS

- **Xhyliu, F.,** Ao, G., “Surface- coatings and light-controlled oxygen doping of carbon nanotubes” *J. Phys. Chem. C*, **2021**.
- **Xhyliu, F.,** Ao, G., “Chirality-pure carbon nanotubes show distinct complexation with recognition DNA sequences” *Carbon*, **2020**.
- Hu, Yi., Liu, H., Fang, C., Li, C., **Xhyliu, F.**, Dysert, H., Bodo, J., Habermehl, G., Russell, B. E., Li, W., Chappell, M., Jiang, X., Ondrejka, S. L., His, E. D., Maciejewski, J. P., Yi, Q., Anderson, K. C., Munshi, N. C., Ao, G., Valent, J. N., Lin, J., Zhao, J., “Targeting of CD38 by the tumor suppressor miR-26a serves as a novel potential therapeutic agent in multiple myeloma” *Cancer Res.*, **2020**.

AWARDS

- Rackham Merit Fellowship, University of Michigan 2020-2025
- Graduate Leadership Award, Washkewicz College of Engineering, CSU May 2020
- National Institute of Standards and Technology Summer Undergraduate Research Fellowship (NIST-SURF) May 2019 – August 2019
- Third place winners - Senior Design Symposium, Washkewicz College of Engineering, CSU May 2019
- Women’s Association Scholarship, Cleveland State University Fall 2018 – Spring 2019
- Radiance Endowed Scholarship, Cleveland State University Fall 2017 – Spring 2019
- Engineering Student Award, Washkewicz College of Engineering, CSU Spring 2017
- President’s List, CSU Spring 2017

PRESENTATIONS

Oral:

1. **Fjorela Xhyliu**, “Surface functionalization and optical spectroscopy of single-wall carbon nanotubes.” Thesis defense at Cleveland State University, Cleveland, OH (July **2020**)
2. S. Cao, P. Guerrero, J. Huang, L. Rossi, I. Said, and **F. Xhyliu**, “SoundOFF: The Selective Noise-cancelling Device.” National Academy of Engineering (NAE) Student Collaboration Lab, London, UK (**2019**).
3. **Fjorela Xhyliu**, Gil Kaufman, and Anthony Kotula, “NAC rescues dental pulp cells exposed to toxic monomer.” Summer Undergraduate Research Colloquium, National Institute of Standards and Technology (NIST-SURF), Gaithersburg, MD, USA (**2019**).
4. M. Kalil, F. Khoury, N. Padaraju, and **F. Xhyliu**, “Manufacturing Facility Design – Monoclonal Antibodies.” Senior Design Presentation, Cleveland State University (CSU), Cleveland, OH, USA (**2019**).
5. **F. Xhyliu**, N. Mohammadshafie, and G. Ao, “Analysis of Surfactant Exchange Kinetics of DNA-Wrapped Carbon Nanotubes.” American Institute of Chemical Engineers Annual Meeting, Pittsburgh, PA, USA (**2018**).

PROJECTS

Cleveland State University

Senior Design Project

Cleveland, OH
February 2019 – March 2019

- Project Title: Manufacturing Facility Design - Monoclonal Antibodies
 - Won the third-place award in the 2019 Senior Design Symposium.
 - Designed a manufacturing process for the production of Avastin from chinese hamster ovaries cells.

- Employed my research and critical thinking skills and independently designed the chromatography unit of the downstream process utilizing MATLAB and Excel, in 30 days.
- Worked successfully in a team and prepared a technical report, oral presentation, and a poster presentation under a tight schedule.

TEACHING EXPERIENCE

Cleveland State University

Teaching Assistant, Engineering Design

Cleveland, OH

January 2019 – May 2019

- Set up and led class experiments and helped students with questions they had regarding the experiments.
- Graded weekly assignments.

SKILLS

- **Laboratory:** synthesis & purification of nanomaterials, EHD jetting, photochemistry, UV-vis-NIR and Raman spectroscopy, dynamic light scattering (DLS), scanning electron microscopy (SEM), Fourier-transform infrared spectroscopy (FTIR), 2D & 3D Cell Culture
- **Computer:** MATLAB, ASPEN, MS Office, AutoCAD, Origin, ImageJ
- **Soft skills:** communication, time management, effective planning and organizational skills, adaptability, critical thinking, highly motivated, independent, team oriented
- **Technical:** effective presentation skills, technical writing, analytical skills, design of experiments

ACTIVITIES AND MEMBERSHIPS

- Graduate Chemical Engineering Society (ChEGS) 2021 – Present
 - ChEGS Social Chair, University of Michigan 2021 – 2022
- Choose Ohio First: Grand Challenges Program at CSU 2018 – 2020
- Global Grand Challenges Summit 2019, National Academy of Engineering September 2019
- Believe in Ohio, STEM Mentor 2019
- Tau Beta Pi Engineering Honor Society (TBP) 2017 – Present
 - TBP Recording Secretary, CSU Chapter 2018 – 2019
- American Institute of Chemical Engineers (AIChE) 2016 – Present
 - AIChE Secretary, CSU Chapter 2018 – 2019
- Society of Women Engineers 2016 – Present

RELEVANT COURSEWORK:

Applied Mathematics for Chemical Engineers	Statistical Thermodynamics	Fluid Flow
Tissue Engineering	Advanced Reactor Design	Colloidal and Interfacial Phenomena
Heat and Mass transfer	Cell & Tissue Biology	Chemical Separation Processes
Biomechanics	Biomedical Signal Processing	Programming with MATLAB
Process Design	Biomedical Physiology	Chemical Process Control
Polymer Physics		