

# Benjamin G. Clark

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## EDUCATION

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- Johns Hopkins University**, Whiting School of Engineering, Baltimore MD **Aug 2024 - Present**
- Pursuing PhD in Mechanical Engineering
- Northeastern University**, College of Engineering, Boston MA **Jan 2021 - Apr 2023**
- Master of Science in Mechanical Engineering with a concentration in Materials Science
- Georgia Institute of Technology**, College of Engineering, Atlanta GA **Aug 2014 - Dec 2018**
- Bachelor of Science in Materials Science and Engineering, Concentration: Biomaterials
  - International Exchange Program: National University of Singapore, Singapore

## EMPLOYMENT HISTORY

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- PhD Student**, *Johns Hopkins University*, Baltimore MD **Aug 2024 - Present**
- Working as a member of the Hur Research Group under the advisement of Professor Soojung Claire Hur to development novel microfluidic tools to solve biomedical engineering challenges
- Research Engineer**, *Traverso Lab of BWH/MIT*, Cambridge MA **Jan 2022 - August 2024**
- Designed, prototyped, and tested stomach-retentive devices for long-term pulsatile drug release
  - Collaborated with the Bill and Melinda Gates Foundation to design and fabricate biodegradable implants for drug delivery (primarily intended for long term contraception in areas with limited access to medical care)
  - Designed, prepared, and performed comprehensive drug release studies, both in vitro and in vivo
  - Developed skills surrounding prototyping, device fabrication, chemical analysis, pharmacokinetics, animal work, experimental design, material characterization, benchwork, and problem solving
  - Designed, prepared, and tested custom drug formulations
  - Prepared preclinical formulations and devices for testing in animals
  - Performed surgical implantation of devices in rodents and collected blood samples for pharmacokinetic analysis
- Designer/Drafter**, *MilliporeSigma*, Danvers MA **Sept 2019 - Jan 2021**
- Created, revised, and maintained over 500 CAD drawings of pharmaceutical equipment and chemical delivery packages
  - Selected to collaborate with two teammates to convert and specialize assembly drawings required for the opening of MilliporeSigma's manufacturing facility in Wuxi, China

Previous Employment: STEM Tutor

## EXPERIENCE

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- Complex Fluids Lab**, *Northeastern University*, Boston, MA **May 2021 - Dec 2021**
- Analyzed flow properties based on the proportion, relative size, and environment of mixed rigid and soft particles
  - Rebuilt, adjusted, and operated a rotating 2D model hopper, controlled with Arduino and Python
  - Performed image analysis using Matlab to rapidly pull data from large image sets generated during the hopper particle flow
- Computational NanoBio Technology Research Lab**, *Georgia Tech*, Atlanta, GA **Jun 2018 - Dec 2018**
- Performed computational research by simulating systems from atomic to molecular scales to predict properties and behaviors of materials, specializing in the optimization of micelle nanoreactors to self-assemble with the specified structure and surface morphology
- MILL Outreach Team Leader**, *Georgia Tech*, Atlanta, GA **Jan 2016 - Jan 2017**
- Collaborated with team leaders to create the MILL (Materials Innovation and Learning Lab), a student-run, materials-science based "maker and measure space"
  - Directed a team of students to organize and run the outreach division of the MILL and promoted the MILL to both fellow students and alumni

## TECHNICAL SKILLS

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**Communication:** Proofreading and revising, peer tutoring, technical writing, Spanish (basic level)

**Example Equipment/Process Experience:** Photolithography, HPLC, tablet press, electroplating, SEM, 3D-printing, laser cutting

## Publications

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- **Soft particles facilitate flow of rigid particles in a 2D hopper**, May 2022, *Soft Matter* 18(21)
- **Effect of Block Length and Side Chain Length Ratios on Determining Multicompartment Micelle Structure**, May 2019, *The Journal of Physical Chemistry B* 123(22)
- **Dissipative particle dynamics simulation of multicompartment micelle nanoreactor with channel for reactants**, November 2018, *RSC Advances* 8(66):37866-37871