TREVOR J. JONES

+1(513) 679-1457 — Princeton, NJ

tjjones@princeton.edu — Trevor J. Jones — @Trev_J_Jones

EDUCATION

Princeton University *Princeton, NJ*

DOCTOR OF PHILOSOPHY IN CHEMICAL AND BIOLOGICAL ENGINEERING *2023 (Projected)*

- Dissertation: Morpho-mechanical rods: from soft robotics to deployable structures
- Advisor: Pierre-Thomas Brun

Vanderbilt University *Nashville, TN*

BACHELOR OF ENGINEERING IN CHEMICAL ENGINEERING *May 2017*

- Summa Cum Laude

PUBLICATIONS

* **T.J. Jones**, T. Dupuis, E. Jambon-Puillet, J. Marthelot, P.T. Brun, "Soft deployable structures via core-shell inflatables," *in review*.

4 **T.J. Jones**, E. Jambon-Puillet, J. Marthelot, P.T. Brun, "Bubble casting soft robotics," ***Nature***. 2021. -[link] -[cover]

3 E. Jambon-Puillet, **T.J. Jones**, P.T. Brun, "Deformation and bursting of elastic capsules impacting a rigid wall," ***Nature Physics***. 2020. -[link]

2 J. Schleifer, J. Marthelot, **T.J. Jones**, P.T. Brun, "The fingerprint of a flow: wrinkle patterns in nonuniform coatings on pre-stretched soft foundations," ***Soft Matter***. 2019. -[link]

1 C. Klein, J. Sallai, **T.J. Jones**, C.R. Iacovella, C. McCabe, P.T. Cummings, "A hierarchical component based approach to screening properties of soft matter," ***FOMMS***. 2016. -[link]

INVITED TALKS

* *March Meeting: Gallery of Soft Matter award session, APS DSOFT.* Las Vegas, NV. *Mar 2023*

* *Physical Mathematics Seminar, MIT Math Department.* Boston, MA. *Dec 2022*

PRESENTATIONS† AND CONFERENCE ABSTRACTS

† *Fluid mediated soft actuators,* Princeton Research Day. Princeton, NJ. *May 2022*

† *Deployable structures with core-shell balloons,* APS March Meeting. Chicago, IL. *Mar 2022*

· *Pneumatic morphorods,* APS March Meeting. Chicago, IL. *Mar 2022*

· *Overcoming gravity in large scale shape morphing structures,* APS March Meeting. Chicago, IL. *Mar 2022*

† *Fluid mediated soft actuators,* DSOFT Gallery of Soft Matter. *Mar 2022*

† Northeast Complex Fluids and Soft Matter workshops. PA, NJ, NY, and *virtual*. *2018-2022*

· *All-in-One Design of Soft Machines,* APS March Meeting. *virtual*. *Mar 2021*

† *Bubble casting soft robotics,* Future of Manufacturing workshop. U. Pennsylvania (*virtual*) *Dec 2020*

† *Design and mechanics of complex inflatable networks,* APS March Meeting. Denver, CO. *Mar 2020*

† *All-in-one design of soft machines,* APS March Meeting. Boston, MA. *Mar 2019*

† *Fluid mediated elastic tentacles,* MEPHiSTO. Cargese, Corsica. *Aug 2018*

AWARDS

2022 **Trailblazers in Engineering Fellow** -Purdue U.

2022 **Gallery of Soft Matter Award** APS DSOFT

2021 **SEAS Award for Excellence** Princeton U.

2017 **Provost Graduate Fellowship** — *declined* Vanderbilt U.

2013 **Frederick M & Jean B Riggs Scholar** Vanderbilt U.

RESEARCH EXPERIENCE

Graduate Assistant in Research — Pierre-Thomas Brun — Soft Matter Mechanics *Princeton, NJ*
PRINCETON UNIVERSITY — LIQUIDS & ELASTICITY LABORATORY *Jan 2018 - Present*

- Develop predictive models for the mechanics of interfacial flows, elastic membranes, and elasto-active materials.
- Study the shape-morphing of nonlinear beam networks undergoing local curvature and length changes.
- Formed on-going projects for architected materials using traditional bead-weaving.

Undergraduate Research Assistant — Clare McCabe — MD Simulation *Nashville, TN*
VANDERBILT UNIVERSITY — MULTISCALE MODELING AND SIMULAITONS CENTRE *Jun 2015 - May 2017*

- Developed open source software (mBuild) in Python for initializing molecular dynamic simulations.
- Leveraged core concepts in nanotechnology, molecular dynamics, and scientific computing to construct an automated process for the large scale parameter screening of soft matter lubrication for NEMS and MEMS.

RESEARCH MENTORING EXPERIENCE

Lab Safety Coordinator *Princeton, NJ*
PRINCETON UNIVERSITY — LIQUIDS & ELASTICITY LABORATORY *Sep 2021 - Present*

- Coordinate the use and training for the Instron, laser cutter, 3D printers, and CNC milling among others
- Manage safety protocol, reporting, and resources as well as equipment usage and organization

Senior Thesis Mentor — ∗ notable outcomes *Princeton, NJ*
PRINCETON UNIVERSITY — LIQUIDS & ELASTICITY LABORATORY *Jan 2018 - Present*

- **Richard Huang**: *"Elasto-active matter"* *Jun 2022 - Present*
  ∗ Project X summer research funding award
- **Matthew Adler**: *"Programming morphoelastic rod networks"* *Sep 2021 - May 2022*
  ∗ Co-producer Gallery of Soft Matter video
- **Kevin Yee**: *"Mechanical behavior of pneumatic granular beams"* *Sep 2021 - May 2022*
- **François Barras**: *"Coiling of an elastic rod embedded in an elastomeric matrix"* *Apr 2019 - Sep 2019*
- **Bartosz Kaczmarski**: *"Mechanical behavior of pressurized rods"* *Sep 2018 - Mar 2019*
  ∗ 1st Place Award for best engineering thesis
  ∗ PhD. Candidate at Stanford U.
- **Jonathon Schleifer**: *"Wrinkling in polymer films of varying thickness"* *Jan 2018 - Sep 2018*
  ∗ Co-author for a publication in ***Soft Matter***

High School Independent Research Mentor *virtual*
POLYGENCE *Dec 2021 - Present*

- **Jefferey**: *"Optimization of a basketball shot"*

TEACHING EXPERIENCE

Assistant in Instruction *Princeton, NJ*
PRINCETON UNIVERSITY *2018 - 2020*

- CBE 245: Introduction to Chemical and Biochemical Engineering Principles J.L. Avalos — *Fall 2020*
- CBE 441: Chemical Reaction Engineering J.L. Avalos — *Spring 2020*
- CBE 341: Mass, Momentum, and Heat Transport P.-T. Brun — *Fall 2018*

Undergraduate Teaching Assistant *Nashville, TN*
VANDERBILT UNIVERSITY *Spring 2017*

- ChBE 3600: Chemical Process Control K.A. Debelak

Science and Engineering Tutor *Nashville, TN*
NSF — TENNESSEE LOUIS STOKES ALLIANCE FOR MINORITY PARTICIPATION *Fall 2014 - Fall 2016*

- Calculus I II & III, Chemistry I & II, Physics I & II, Organic Chemistry, Thermodynamics

MEDIA ATTENTION

Bubble Casting Soft Robotics

- Research interview and coverage -[EPrinceton] -[FYFD] -[BBC]
- Gallery of Soft Matter interview -[Physics Magazine] -[APS]

Native American Heritage Month

- Interview -[EPrinceton] -[LCO Tribal News]

SOCIAL AND PROFESSIONAL ENGAGEMENT

Full-Circle Mentor *virtual — conference*
AISES *Jun 2022 - Jun 2023*

- Volunteer as an academic mentor to AISES college student member
- Co-create a plan for STEM excellence by identifying mentee's goals and developing skills/strategies for success

Near-Peer Mentor *Princeton, NJ*
NSF — PRINCETON UNIVERSITY — BIOPHYSICS REU *Jun 2022 - Aug 2022*

- Volunteer as a professional mentor to a visiting undergraduate researcher
- Advise on research communication, career planning, and graduate school through casual encounters (e.g. coffee)

Scholarship Reviewer *virtual*
AISES *a.y. 2022 - 2023*

- Volunteer as a scholarship reviewer for undergraduate scholarships supported by AISES

V^2 Mentor *Nashville, TN*
VANDERBILT UNIVERSITY *a.y. 2016 - 2017*

- Volunteer as an academic and university-life mentor for a group of Engineering freshmen
- Led group and individual meetings to advise on university resources, academic planning, and community building

Science and Engineering Tutor *Nashville, TN*
NSF — TENNESSEE LOUIS STOKES ALLIANCE FOR MINORITY PARTICIPATION *Fall 2014 - Fall 2016*

- Tutor STEM courses to improve quality of the learning environment for underrepresented STEM students at local universities (e.g. Vanderbilt, Fisk, Tennessee State)

Professional Memberships

- American Physical Society (APS)
- American Indian Science and Engineering Society (AISES)
- American Institute of Chemical Engineers (AIChE)