**SOHAM** ​ **SINHA**​

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**OBJECTIVE:**

To gain extensive research experience in the field of bioengineering in order to​ ​develop​ ​required​ ​skills, ​ ​thus​ ​enabling​ ​me​ ​to​ ​contribute​ ​to​ ​this​ ​field​ ​in​ ​the​ ​long​ ​run as a career researcher and professor.

**EDUCATION:**

* *Stanford University,* Palo Alto, CA (2020- )

Doctorate in Bioengineering. Stanford Graduate Fellow. National Science Foundation Graduate Research Fellow.

* *Georgia Institute of Technology*, Atlanta, GA (2017-2020) CGPA: 3.69 [Current ​ Credits: 166] ​

B.S. in Chemical and Biomolecular Engineering: Biotechnology Option; B.S in Chemistry: Standard Option. [Faculty Honors: Fall 2017, Spring 2018, Summer 2019] [Deans Honors: Summer 2018, Fall 2018, Spring 2019, Fall 2019]

* *The International School of Brussels,* Brussels, Belgium (2014-2017) CGPA: 4.70/4.80​ ​Scored 42​/45 ​ points

IB Diploma with HL (Higher ​ level) ​Chemistry, HL Physics, HL Math and HL Further​ ​Math​ ​(Independent​ ​study)​ ​ ​

* *White*​​*Station*​​*HS*​, ​ ​Memphis,​ TN​ ​​(2013​ ​-​ ​2014) ​GPA: ​4.93​​

​Challenging​​ ​Academic ​​Optional​ ​program

**PUBLICATIONS and Conference Proceedings:**

* **S. Sinha,** V. Manchaiah, U. Irani, M. Saad Bhamla*.* LoCHaid: An Ultra-low cost hearing aid for age related hearing loss. *PLoS One*
* G. Byagathvalli, **S. Sinha**, Y. Zhang, M. Styczynski, J. Standeven, M. Saad Bhamla. ElectroPen: An ultralow-cost piezoelectric electroporator. *PLoS Biology 18(1):* e3000589*.*
* G. Byagathvalli, A. Pomerantz, **S. Sinha**, J. Standeven, M. Saad Bhamla (2019). A 3D-Printed hand-powered centrifuge for molecular biology. *PLOS* *Biology* 17(5), e300251.
* E. Challita, **S.Sinha,** , R. Krugner, M. Saad Bhamla (2018). Insect Pee: How Glassy-winged Sharpshooters excrete ultrafast fluid droplets.. *Integrative and Comparative Biology* 59, E34-34. (Video).
* **S. Sinha,** E. Challita, U. Irani, M. Saad Bhamla (2019). Biphasic Instabilities in Fluid Geometries. *APS DFD Fluids* (Video).
* S. Methipalli, **S. Sinha**, J. Standeven, M. Saad Bhamla (2019). Building of Low-Cost Bead Homogeniser. (Submitted Abstract for iGEM Jamboree 2019).
* **S. Sinha** (2017). Behavior of Spinning Objects in Fluid. *Published as International Baccalaureate Physics Extended Essay*.
* **S. Sinha,** V. Manchaiah, U. Irani, M. Saad Bhamla Addressing age related hearing loss through engineering accessible and affordable hearing technology. World Congress Audiology Abstract Submission (April 2020).

**PATENTS**

* U.S. Patent Application 16/374,171 – ‘Low-Cost Hearing Aid Platforms and Methods of Use’- Patent Pending. Inventors: **Soham Sinha** and M. Saad Bhamla.

**RESEARCH AWARDS AND GRANT CONTRIBUTIONS**

* Outstanding Undergraduate Researcher of the Year (April 2019) – Received Institute Award for research completed during the year 2017-2018.
* Presidents Undergraduate Research Award (Spring 2018 and Summer 2019)– Received stipend based on research proposals.
* American Chemical Society PRF Doctoral New Investigator Research Grant (March 2019)– Contributed to writing of this grant on Biphasic Instabilities with M. Saad Bhamla, and Elio Challita.
* NIH -NDCD Grant for Low-Cost Hearing Aid Technology (November 2018)– Contributed to writing of this grant on Low-Cost Hearing Aid with M. Saad Bhamla, V. Manchaiah.
* Winner of Petit BioNature Photo Contest on California Glassy Winged-Sharpshooters. Hung in Petit Bioinstitute Building for Fall 2018.
* Recipient of Air Products Undergraduate Research Stipend for summer 2018.

**INTERNSHIPS AND TEACHING EXPERIENCE:**

* *Undergraduate Teaching Assistant, School of Math* (Fall 2018-present)

Created quizzes, worksheets for groups of 30-60 students at a time and ran own recitations for Math 1553 Linear Algebra and Differential Equations.

* *Undergraduate Teaching Assistant, School of Chemical Engineering* (Fall 2019-present)

Graded HW and quizzes for CHBE 2130 Thermodynamics I.

* *PLUS Leader (Precalculus, Linear Algebra, Organic Chemistry)* (Spring 2018-present)

Led PLUS Sessions Created worksheets to help students outside of recitations, and classes.

* *Mentor for High School Students for research project, Bhamla Lab* (Spring 2018- present)
* *Student Tutor* (Spring 2018- present)

1-1 Student Tutor to 30 individual students over the course of my time at Georgia Tech.

* *Teaching Assistant, Challenge Progam* (Summer 2019)

Created quizzes, HW sets, and exams for Summer Challenge Math 1501 Program designed for underrepresented minority students.

* *Intern, Euroclear*​​*(Ethics*​​*and*​​*Compliance),*​Belgium (August 2016) ​

​Designed new interfaces for corporate internal webpage so employees can easily access the information and make it​ ​more​ ​visually ​ appealing​

* *Intern, Rockwell*​​*Automations,*​Belgium (​July 2016)

Designed and implemented a hybrid virtual soft drink processing line by connecting hardware such as belt drives and ​ ​servo​ ​motors,​ ​and​ ​then​ ​simulating​ ​the​ ​process​ flow​ ​​through​ ​software​ ​with​ ​a​ ​human​ machine​​ ​interface.

**SKILLS**

* *Software* -,AutoCad, Solidworks,CamWorks, Matlab and Simulink, Code Composer Studio, 3D Printing Form Labs, Aspen Plus, Aspen HYSYS, Pearl, Linux (Ubuntu, RedHat, Kali), Python, Java, C++, Visual Basic, Eagle, OrCad, Mathematica, Adobe Creative Suite (Illustrator, Photoshop, Premier Pro), Microsoft Office Suite (Access, Word, Powerpoint, Excel, Publisher), Arduino, Latex.
* *Workshop Skills* - CNC manufacturing using Lathe and Mill, Metalworking, woodworking, acrylic, glassblowing, soldering (air-flow and hand), Laser Printing, PCB manufacturing, SEM imagery, dissection, light and fluorosence microscopy, high speed video capturing and setup. MEMS device manufacturing.

**ACADEMIC​ ​ UNDERGRADUATE RESEARCH** ​ **PROJECTS**​​**:** ​

* *A Low Cost – Hearing Aid Platform* (2017- 2019)​

​Faculty​ Mentor​ ​ ​-​ ​Assistant ​ ​Professor​ ​Dr.​ ​Saad​ ​Bhamla​ ​(Georgia​ ​Institute ​ of​ ​ ​Technology)

Developed an ultra-low-cost (<$1), portable, and “smart” bone-conducting hearing aid that is light-weight (2 g), customizable (soft, 3D printed custom-hear fit) and is fully open-source (anyone around the world can individually program the aid to fit his/her needs)

* *The Biophysics of California Sharp Shooters* (2017 - present)

Faculty​ ​Mentor​ ​-​ ​Assistant​ ​Professor​ ​Dr.​ ​Saad​ ​Bhamla​ ​(Georgia​ ​Institute​ ​of​ ​Technology), Bradley Donovan (USDA Agricultural Department in Fresno, CA)

Working on the mechanisms of high pressure, biofluid excretions of California Sharpshooters, a common agricultural pest. ​​

* *Non-topologically Equivalent Hydrophobin Toroid Bubble Formation* (2018-present)

Faculty Mentor – Assistant Professor Dr. Saad Bhamla (Georgia Institute of Technology), Graduate Student Mentor – Xujung Zhang (Professor Dr. Paul Russo) (Georgia Institute of Technology)

Currently working on systematic analysis of toroidal bubble formation (both mathematical and physical) from spherical miscelles of hydrophobins through selective pressure paths.

* *A Low-Cost Alternative to Bead Homogenising* (2019)

Currently mentoring a group of high school students from Lambert High School, GA on developing a low cost (< $3), efficient, sturdy bead homogenizer for DNA extraction.

* Biphasic *Instabilities in at Intermediate Reynolds Numbers* (2018 - present)

Faculty Mentor- Assistant Professor Dr. Saad Bhamla (Georgia Institute of Technology). Graduate Student Mentor – Elio Challita (Professor Dr. Paul Russo) (Georgia Institute of Technology)

Currently working on analysis of instabilities exhibited by closed form geometries at two phasic flow at intermediate Reynolds numbers.

* A *Low-Cost E-Coli Piezoelectric electroporator (Lambert High School IGEM* (2018-2019)

Mentoring a group of high school students from Lambert High School, GA on developing a low-cost (<$3), efficient, sturdy, electroporator for Toehold switch DNA insertion.

**ACADEMIC PRESENTATIONS:**

* *Future Leaders in Chemical Engineering* (October 2019). Invitational talk on LoCHAid to faculty and graduate student audience. North Carolina State University, Raleigh, NC
* Southern *Regional AICHE Conference* (April 2018). Poster on A Low-Cost Hearing Aid Platform. Louisiana, State University, Baton Rouge, Louisiana.
* *Air Products Research Conference* (May 2018). Poster on A Low-Cost Hearing Aid. Georgia Institute of Technology, Atlanta, Georgia.
* *Insect Pee: How Glassy-winged Sharpshooters excrete ultrafast fluid droplets* (November 2018). Presented at APS Division of Fluid Dynamics, Atlanta, GA.

**ACADEMIC​ ​AWARDS ​ AND ACHIEVEMENTS (From 2015 Onwards): ​**

* Faculty Honors (Georgia Institute of Technology) List (4.0 GPA) for Fall 2017, Spring 2018 Semesters. ​
* Second​ ​​ ​Place ​ Overall​​ in​ ​ ​the​ International ​ISMTF​ ​Senior​ Mathematics​ ​Competition​​ ​held ​​in ​ Vienna, Austria​ (2017)​
* Recipient​ ​of​ ​the​ ​John​ ​M.​ Norton​ ​​Memorial​ ​Scholarship ​ for​ ​ excellence ​ in​​ Mathematics​ ​ and Sciences (2017)
* Second​ Place National in Belgium for Sections A and B of the Chemistry Challenge held by the Royal Society of Chemistry​ ​Chapter​ ​in​ ​Belgium​ ​(2016)
* Heads​ ​List​ ​for​ ​having​ ​more ​ than​ 36 points in​​ ​the​ ​top​ ​6​ ​classes​ ​(consecutively​ ​for ​​the​ ​years​ ​2015,​ ​2016,​ ​2017​ )​
* Recipient​ ​of​ ​the​ ​John​ ​M.​ ​Norton​ ​Award ​for​​ ​excellence ​ in​ ​ Physics​ (2017)​
* Recipient​ ​of​ ​the​ ​Heads​ Award​ ​​for​ ​outstanding​ ​character ​ and ​positive​ contributions​ to​ ​ school​​ ​(2017)
* Recipient ​of​ ​the​ ​Euler ​ Award​​ ​in​ Mathematics​ ​ ​for​ outstanding​ mathematical ​ achievement​​ (2017)​
* National ​Merit​ ​Honorable​ ​Mention​ ​(International​ ​Mention)​ for​ ​ ​performance ​ in​ ​ PSAT​ (2016)​
* Inducted​ ​into​ ​the​ ​National​ ​Honor ​ Society​​ (2015)​
* Recipient of School Technology Prize for Best Achievement in Computer Science (2015)

**ACTIVITIES/INITIATIVES** ​ **AS**​ ​ **HIGH**​ ​ **SCHOOL**​ ​ ​**STUDENT** ​ ​**COUNCIL** ​ **PRESIDENT**​ ​​**(2015-2017):**

* *Student Council and High School Website* (2016-2017) – Helped design and build a new website for Student Council and the High School Community with the Student Council body. Specifically implemented the website with ​ ​IT​ ​Department​ and​ ​ ​Faculty​ ​of​ ​High​ ​School​ ​and​ ​later​ ​with​ ​General ​ Student​ ​ ​Body.
* *Inspirational Speakers Initiative* (2015-2016) – Led an initiative to find Inspirational Speakers from the Brussels Community such as Refugee Camp Aid Workers, Globetrotters, Professors to come to school and share their experiences​ ​with​ ​the ​ ​High ​ ​School​ ​Student​ ​Body.
* *Community Meetings* ​(2015-2017) – Led and implemented the concept of “For the Students, By the Students” where​ ​fellow​ ​students ​ ran​ ​ ​school-wide ​ ​community​ ​meetings.
* *Gender-Neutral Bathroom Initiative* (2016-2017) – Led the initiative to build a Gender-Neutral bathroom for members of the LGBTQ+ community in school. Specifically worked with faculty and a Belgian Government employee​ ​on​ ​raising​ ​awareness,​ ​and​ the​ ​ ​timely​ implementation​ ​ of​ ​ the​ ​ bathroom.​
* *Staircase Painting Initiative* (2016-2017) – Led and implemented the initiative to design and paint the staircases of the​ ​school.
* *Quiz Bowl Club* (2014-2017) – Formed and led a Quiz Bowl Club in High School. Worked with faculty and

students​ ​to ​ ​organize​ ​tournaments,​ ​and​ ​create​ ​questions.​ ​Now​ a​ ​​yearly​ ​tournament​ ​is​ ​held​ in​ ​ school.​

* *Student Tutoring Program* (2015-2017) – Greatly expanded the student tutoring program and worked with faculty to​ ​target​ ​students​ ​who​ ​were​ ​having​ ​trouble​ ​in​ ​classes​ ​and​ ​connect​ ​them​ ​with​ ​a​ ​fellow​ ​student​ ​tutor.