Taliyah Huang

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Education

Johns Hopkins University - B.S. Biomedical Engineering, B.S. Computer Science — Baltimore, MD
- Minors in Robotics, Entrepreneurship & Management — 2022 - 2026
- Received Dean's List award (3.5+ GPA) in all semesters

Relevant Courses

- Introduction to Mechatronics — Spring 2026
- Computer Vision — Spring 2026
- Algorithms for Sensor-Based Robotics — Spring 2026
- Computer-Integrated Surgery I — Fall 2025
- Intro to Human-Computer Interaction — Fall 2025
- Systems and Controls — Spring 2025
- Systems Biology of the Cell — Spring 2025
- Computational Medicine: Cardiology — Fall 2024
- Biological Models & Simulations — Spring 2024
- Nonlinear Dynamics of Systems — Spring 2024

Research

The Impact of Coaching in the Visual Perception of Damping — Feb. 2025 - Dec. 2025
Johns Hopkins Haptics and Medical Robotics (HAMR) Lab, Dr. Jeremy Brown
- User studies tested humans' innate ability to visually perceive differences in damped two-link arm simulations
- Investigated how strategic coaching improves accuracy even when the task itself contradicts fundamental physics
- Identified future applications for automated evaluations for rigidity and spasticity in physical therapy
- Selected to present at the poster session for the 2025 Malone Healthcare Symposium at Johns Hopkins University
- Submitted a **first-author manuscript under review in PLOS Computational Biology**
- Under consideration for an oral presentation at the 2026 Neural Control of Movement conference in Kobe, Japan

CryoExtract: Novel Device for Streamlining Tissue Retrieval in Lung Cryobiopsy — Aug. 2024 - May 2025
Johns Hopkins Biomedical Engineering, Dr. Elizabeth Logsdon
- Observed cryobiopsy procedures and interviewed pulmonologists, nurses, and pathologists to identify needs criteria
- Designed a lightweight tool with optimized geometry to fulfill all functional and usability requirements
- Ongoing meetings with Johns Hopkins Technology Ventures and Erbe America to patent and license the device
- Presented in the poster session at the 2025 Design Day at Johns Hopkins University
- Gave an **oral presentation at the 2025 Interventional Pulmonology Outcomes Group (IPOG) conference**

Analyzing the Climbing Dynamics Between Mountain Goats and Humans — Jan. 2023 - Dec. 2023
Johns Hopkins Terradynamics Lab, Dr. Chen Li
- Used OpenPose and DLTdv8a to track velocity and acceleration of joints relative to rock holds
- Developed a Matlab and Python pipeline to convert climbing recordings to panoramic images
- Guided the next lab member through a full handoff, sharing all essential project knowledge

Virgo: Novel Phone Case for Emergency Epinephrine — Jun. 2022 - Aug. 2022
Stanford Institute of Medicine Research Program
- Worked with Stanford PhD mentors and high school teammates to identify need for accessible allergy medication
- Designed a phone case for epinephrine nasal spray and pill tablet integration along with companion mobile app idea
- **Prepared a manuscript and presented at the poster session** for the 2022 Stanford Institute of Medicine Symposium

A Tangible Solution to Closing the Gender Gap in Engineering — Jun. 2022 - Aug. 2022
Stanford University, Summer Research Internship for High School and Community College Students
- Developed a website providing resources and quizzes for inspiring young women to pursue STEM careers
- **Published as a co-author** on the Journal of Student Research (https://doi.org/10.47611/jsrhs.v12i1.4163)

Sensible Computing: Physical Coding for People with Visual Disabilities — May 2021 - May 2022
University of California, Berkeley, Disability Lab, Dr. Karen Nakamura
- Worked with UC Berkeley PhD students to conduct interviews with blind engineers and identify needs criteria
- Designed and 3D printed several iterations of physical coding blocks with tactile identification markers

Work Experience

Senior Testing and Production Co-Op Jun. 2025 - Present
Kubanda Cryotherapy
- Created **technical drawings for welding** of cryogenic nozzle components and troubleshooted device failures to advise next design approach
- Built multiple working devices from scratch and responsible for **training employees** at 3rd-party manufacturer
- Designed **custom 3D-printed fixtures** and developed training videos for quality testing of the cancer treatment device
- Developed 80+ page detailed instruction book with annotated visuals for complete **mechanical device assembly**

Undergraduate Researcher Jan. 2025 - Present
Dr. Jeremy Brown Haptics and Medical Robotics (HAMR) Lab at Johns Hopkins University
- Computational modeling and user studies to understand humans' **visual perception of dynamics** for stroke rehabilitation and surgical robotics
- **Integrated actuating motors** for macro-scaled **prosthetic hand** and created supports with CAD and 3D printing
- Initiated and currently manage HAMR Lab's Instagram and LinkedIn social media accounts
- Showcase engineering projects at youth STEM outreach events with local organizations such as Camp B'More and Barclay Elementary School

Design Team Leader and Project Manager Jan. 2024 - Present
Johns Hopkins Biomedical Engineering
- Led a team of 8 students in developing a device to **optimize lung cryobiopsy** sample tissue removal
- **Responsible for mechanical design**, CAD and 3D printing of prototypes, and quality checking of design controls
- Conducted **V&V testing with live swine**, revealing promising results of faster removal with larger sample sizes

Clinical Development Engineering Intern Jun. 2024 - Aug. 2024
Moon Surgical
- **Co-authored 510(k) FDA submission** paperwork for Maestro **surgical robotic assistant'**s advanced feature ScoPilot
- Conducted design validation usability studies with 15 surgeons, including 4 **human cadaver labs**
- Interviewed 20 clinicians to explore prioritization of future applications of Maestro and ScoPilot
- Developed and 3D-printed a unique interactive demo and training game for Maestro's commercial launch
- Designed and casted a **custom gynecologic model** for the uterine manipulator project

Co-Founder and Director of Marketing and Partnerships May 2023 - Present
Higher Grounds Vending L.L.C.
- Secured contracts to **install and operate 3 fresh café vending machines** on the Hopkins Homewood campus so far
- Ongoing conversations to launch locations at UC Berkeley and other universities in the next few months
- Collected feedback from **500+ customer surveys** and interviews to identify students' need for fresh, convenient, and affordable caffeine and milk tea
- Selected to participate in various startup accelerator programs, receiving **$11,000 in non-dilutive grants**
- Innovate with menu offerings and strategy, achieving **$6,000+ in monthly sales** and giving back to the community
- **Design all promotional graphics** for machine and marketing use, manage social media and website development

User Interface and Experience Designer May 2023 - Dec. 2023
Quest2Learn
- Conducted user interviews to understand root problems in laboratory science education
- Programmed Streamlit Python web application for dermatology education (Derm Discovery)
- Designed an app interface in Figma for lab skills development tool featuring AR and AI (Quest2Learn AR + Lab Co-Pilot)

Undergraduate Research Assistant Jan. 2023 - Dec. 2023
Dr. Chen Li Terradynamics Lab at Johns Hopkins University
- Use **Python and Matlab** to analyze climbing mechanism of mountain goats and humans for robot development
- Worked with PhD students and gave weekly lab meeting presentations

Biological 3D Modeling and Animation Developer Aug. 2022 - Jan. 2023
MagIC Lifescience Inc.
- Created **professionally-animated 3D biosimulations** for demonstrating the startup company's biotech product
- Led team meetings and planning for animation production

Bioengineering Team Summer Intern Jun. 2022 - Aug. 2022
Stanford Institute of Medicine Research Program, Shriram Center for Bioengineering
- Prototyped and presented a novel medical device that addresses the issues of emergency allergy medication
- Responsible for CAD, 3D printing, animation, and website development

Assistive Technology Research Intern May 2021 - May 2022
U.C. Berkeley, Dr. Karen Nakamura Disability Lab
- Core member of Team Sensible Computing to create a tangible solution for blind people in screen-less programming
- Designed the new disability bear logo and revamped the lab website to highlight research projects

Founder and Instructor May 2020 - Jul. 2021
Youth Innovate
- Taught 300+ hours of virtual summer/semester-long programs in art and STEM subjects for students in grades 3-8
- Organized all accounting, marketing, course-planning, and logistics with materials delivery for hands-on technical and creative projects

Personal Projects

STEMables - Educational Tech Blocks (https://bit.ly/stemables)
- Magnetic 3D-printed blocks with unique sensors and textures, re-arrangeable to physically code any smart circuit sensor system
- Mission for visually-impaired and dexterously-challenged kids to learn electronics and programming in a fun, easy, and accessible way

Custom GamePigeon Games - Feature-Rich, Multilingual Web Remake (https://customgpgames.com)
- Built a site to play iMessage GamePigeon Word Hunt and Anagrams with greater customization, including more foreign languages, letter selection, game arrangements, timing, etc. for Android and laptop users as well as pro-gamers to enjoy (Phaser.js, Tailwind.css)
- Also explored the potential of building bots to excel at Word Hunt, Anagrams, and Darts (Python, Arduino)

Emokeys - Infinite Emoji Mechanical Keyboard (https://bit.ly/emokeys)
- Designed a custom keyboard from scratch featuring 9 OLED displays that allow an infinite library of colorful characters,

BobaWay - Taiwanese Language Tools (https://bobaway.org)
- Created an English to Taiwanese translator to inspire other Taiwanese-American kids to learn their native tongue
- Web app works on any device, translations come with audio for learning pronunciation of an unwritten language
- Added Tai-Ping and Typewanese audio keyboards for learning romanized Taiwanese (Python Flask)
- Interviewed and published on Taiwan Plus, World Journal, Radio Taiwan International, Talking Taiwan, and more

Mouseky - Unique Keyboard Designed and Developed from Scratch (https://bit.ly/mouseky)
- Soldered and wrote custom firmware for a one-of-a-kind, split, wireless keyboard with an integrated mouse
- CAD and 3D printed creative keyboard housing to professionally package the Arduino electronics and keyswitches

CPACE - Assistive Technology for Quadriplegia (http://bit.ly/projectcpace)
- Mission to develop a “robotic arm" assistive device for my best friend with cerebral palsy to use a smartphone
- Redesigned as an affordable way for a person with quadriplegia to use any touchscreen

Circuitful - Colorful Circuit Diagramming (https://circuitful.netlify.app)
- Frustrated with the lack of keyboard shortcuts, graphics, and customization in electronic schematics software like Fritzing and Tinkercad,
  I set off to program my own circuit diagramming web app from scratch (Phaser.js)

Auto Mask - Build for COVID 19 (http://bit.ly/auto-mask)
- Inspired thousands during the quarantine by designing a robotic face covering to make mask-wearing more hygienic and comfortable

Activities

President and Lead Designer Dec. 2023 - Present
Engineering Design Center Student Advisory Board
- Selected by the Director of the Engineering Design Center to found and lead the student advisory board
- Host monthly guest speaker workshops, themed engineering design competitions, and other activities to promote multidisciplinary engineering
- Help plan the annual Design Day for showcasing engineering student projects and Meet the Flock first-year orientation engineering challenge
- Designed and presented the custom JHU Design Day Keynote Speaker Award for Founder and President of FIRST Robotics, Dean Kamen, in 2024, and VP of Research at Intuitive Surgical, Rich Mahoney, in 2025

Co-President Apr. 2025 - Present
Hopkins Organization for Programming (HOP)
- Oversee the overall function and operation of the HOP board for the planning and execution of campus activities as the highest-funded club
- Event planning and leadership as Co-Chair of Nights Committee (2023-24) and Co-Chair of Marketing (2024-25)

Treasurer Aug. 2023 - Present
Japanese American Students Association (JASA)
- Manage club treasury funds and create budget documents to report to club members and staff advisors
- Place and receive purchase order requests for groceries and other supplies for running events that promote and share Japanese culture

Zumba Instructor Jan. 2023 - Present
Ralph O'Conner Recreation Center
- Choreograph and lead fun, high-intensity dance workouts for Johns Hopkins students and staff on a weekly basis

Founder, Content Creator Jan. 2023 - Present
Taliyah Engineering on Youtube, Instagram, Tiktok, Facebook
- Invent and build innovative and creative gadgets using CAD, 3D printing, programming, and electronics
- Produce and promote detailed videos that document the design process
- Featured news on Official Arduino Twitter, Gizmodo, Hackster.io, Hackaday (Mouseky)
- Interviewed and highlighted on articles with the World Journal, Baodao Radio, Radio Taiwan International (BobaWay)

Skills

- *CAD/3D Design* (8 yrs **Onshape**, 5 yrs **Blender**, 2 yrs **SolidWorks**)
- *Programming* (6 yrs **Python**, 4 yrs C++, 2 yrs **MATLAB**, 1 yr **Java**)
- *Web Development* (8 yrs with Wix, 8 yrs **Squarespace**, 7 yrs **HTML/CSS**, 7 yrs **Javascript**)
- *Electronics Prototyping* (6 yrs **Arduino**)
- *Graphic Design* (6 yrs **Photoshop**, 4 yrs **Canva**, 2 yrs **Figma**)
- *Video Editing* (4 yrs **CapCut**, 2 yrs **DaVinci Resolve**)
- *Foreign Languages* (Native **Taiwanese** and **Mandarin**, Intermediate Proficiency with **Japanese**)

Awards

A. James Clark Scholar - $100,000 merit **Awarded by: JHU Whiting School of Engineering**
- 4-year tuition scholarship awarded for achievements in engineering, leadership, entrepreneurship, and service
- Exclusive opportunities for a fully-paid study abroad trip to Chile, volunteering for youth STEM education, etc.

Charles Schwab Scholarship - $10,000 merit **Awarded by: Professional BusinessWomen of California**
- Received the top award offered by PBWC that honors 1 young woman every year for entrepreneurial achievements

People's Choice Award - $5,000 grant **Awarded by: JHU Pava Center for Entrepreneurship**
- Second biggest prize at Fuel Demo Day, supports expansion of my startup, Higher Grounds Vending

Senior Innovator Award & Innovation Diploma **Awarded by: Design Tech High School**
- Received the top award that honors 1 graduating senior every year for achievements in innovation