

Gitanjali Rao

<https://www.linkedin.com/in/gitanjalirao/>

High-school Senior with over three years of demonstrated research skills and success in developing innovative devices that solve current health and social problems. Committed problem solver with experience in research, analysis and solution development combining programming tools with fields of genomics and nanotechnology. Experience in commercial water and biology labs adhering to requisite constraints and compliance requirements.

Core Competencies and Skills:

- Training in Genetics lab work, water chemical testing and advanced coursework in Biology
- Experience in programming in Python(intermediate), AI-machine learning(intermediate), Arduino/Raspberry-PI/Adafruit (intermediate) coding and custom apps for medical devices
- Android app development and marketplace deployments
- Competency in prototype developing and product iteration
- 3D design, modeling and printing using CAD (Onshape, Fusion360, Tinkercad, and Blender) (intermediate)
- Experience in conducting remote and classroom sessions in schools and teacher conferences around the globe, on STEM concepts and innovation
- Experience in showcasing innovations to industry and public at conferences and global summits

Work/Internship Experience:

Research Intern (Research Science Institute 2022) at Sabeti Lab, Broad Institute MIT/Harvard
(June 2022 – August 2022)

Research and testing of next -generation novel sequencing protocol to identify the pathogenesis of infectious diseases including CoronaVirus diseases (SARS-COV-2), Ebola Virus disease(EVD), and tick-borne illnesses.

Research Intern at Bhatia Lab, MIT Koch Institute for Integrative Cancer Research, Cambridge, MA
(May 2022 – June 2022)

Activities Include:

- **Conditionally activated therapeutics for infectious disease and cancer:** Shadowed research on lung tumor targeted drug delivery system utilizing polypeptide delivery mechanism and fucose-based nanoparticles.
- **Engineering synthetic breath biomarkers for respiratory disease:** Shadowed research on developing a serial breath test to monitor changes in neutrophil elastase activity in lung infections.
- Hands-on experience in plasmid cloning, tissue staining, administration and monitoring of bio-distribution of proteins in live mice models.

Reference Letter: [Dr.Bhatia Reference](#)

Colorado Dept. Of Law, Denver, CO, (September 2021 – December 2021)

Internship shadowing Dept of Law officials on prescription opioid addiction campaign management and target demographics to create a successful response plan for the state.

Reference Letter: [Supervisor Reference](#)

Lockheed Martin Internship, Denver, CO, (August 2020 – December 2020)

Internship program in partnership with select Lockheed Martin scientists and engineers to develop solutions for challenges in space travel and permanent planetary bases.

- Role of a science specialist and creative director in a multidisciplinary team
- Responsibilities included providing biological science support and instrument integration to develop solutions to the problems of growing vegetation during long term space travel
- Worked with team members with diverse skills to develop prototypes and final presentations

Reference Letter: [Supervisor Reference](#)

University of Colorado, Denver, CO, (January 2018 – March 2021)

Cell and Development Biology Lab

Research Intern working on Mu opioid receptor gene protein expression in response to prescription opioids under the guidance of Associate Professor, Dr. Michael McMurray

- Lab work: PCR, ELISA, Agarose DNA electrophoresis, polyacrylamide protein electrophoresis, immunoblotting, protein and DNA extraction, yeast and bacterial transformation
- Conducted research on the process of protein production in specific genes and cell surface protein expression.
- Designed, modeled, and programmed a colorimetric based prototype device, with a partner mobile app, to recognize various concentrations of expressed protein that helps with directional diagnosis of prescription opioid addiction.

Reference: <https://news.cuanschutz.edu/medicine/kid-of-the-year>
<https://www.uspto.gov/learning-and-resources/journeys-innovation/field-stories/one-girls-commitment>

Denver Water Research Lab, Denver Water, Denver, CO (Dec 2017 – Present)

Research Intern working on a portable lead testing device using nanomaterials under the guidance of Lab Manager, Dr. Selene Hernandez

- Conducted research on measuring and determining the amount of lead in ppb using doped carbon nanotubes.
- Created a portable device for measuring lead content in water
- Calibrated device I created using nanomaterials, with other lead detection devices used in the lab including false positive testing
- Formulated an approach to determine amount of lead particles in water samples using doped carbon nanotubes

The 3D printing Store, Denver, CO (Oct 2017 – May 2018)

Intern in leading additive printing, 3D modeling and design business

- Lead design and printing for customer orders. Award design for Boeing/Jeppesen employees
- Designed, modeled, and printed animal prosthetics using “Onshape”
- Designed biomedical device outer parts
- Advised customer on appropriate design and biomaterials to suit their needs

Leadership and Community Service:

- Partnered with Forbes Ignite to pilot an employee engagement and educator ideation program at different schools and internship programs to enhance student performance 2020 - 2022
- Board member for Children’s Kindness Network, accountable for ideas, planning and execution of Kindness programs in schools and educational institutions. 2012 - Present
- STEM Scouts Volunteer conducting weekly STEM Sessions on varied topics 2017- 2022
- President, Douglas County Local 4H Chapter, 2020/2021/2022
- UNICEF Youth Advocate 2021 and National Geographic Young Explorer 2021
- Lenovo Kind City Council Initiative, CTO of the future
<https://www.techforgood.net/articles/the-cto-of-the-future/>
- TIME 2030 Committee <https://time.com/5932958/time-2030-project-post-covid-world/>
<https://time.com/time2030/>
- MIT App Inventor : Foreword for the book and training refugee camp students in collaboration with authors Selim Tezel, Curriculum developer at MIT:
<https://www.amazon.com/Become-App-Inventor-Official-Designing/dp/1536219142/>

Reference: [Author Selim Tezel reference](#)

Publications:

- Author of best-selling book “Young innovator’s Guide to STEM”, 2020, ISBN-10 1642938009: Available globally and in 5 languages and as a self-narrated audiobook. Published
- Author of children’s book “Baby Brother Wonders”, ISBN-10: 1489704086. Self-illustrated and based on PBS national award winning story by the author.
- UNICEF Youth Advocate, Voices of Youth Series, 202
- Future of Innovation, Forbes, 2022