# Arunima Singh

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## EDUCATION

**NORTHWESTERN UNIVERSITY** | Evanston, IL
*McCormick School of Engineering, Weinberg College of Arts and Sciences* *2020 - 2024*
Integrated Science Program**,** Bachelor of the Sciences **|** Computer Science, Bachelor of the Arts | Neuroscience

GPA: **3.80/4.00**
Relevant Coursework: Fundamentals of Computer Programming I and II; Data Structures and Algorithms; Mathematical Foundations of Computer Science; Advanced General Inorganic Chemistry Course and Lab; Molecular Biology; General Physics (Integrated Science Program sequence); Cellular and Molecular Neuroscience; Systems and Behavioral Neuroscience; Organic Chemistry I and II and Labs

**WAYZATA HIGH SCHOOL** | Plymouth, MN *2016 - 2020*
GPA: **3.99/4.00** | ACT: **36/36**
Relevant Coursework: AP Chemistry, AP Biology, AP Physics C, AP Computer Science A, AP Calculus AB and BC

## WORK AND RESEARCH EXPERIENCE

**Radiation Oncology Lab**
*Research Assistant* *2021 - Present*
- Research assistant in the Abazeed Lab at the Feinberg School of Medicine, Department of Radiation Oncology
- Create image-based machine learning algorithms to automate classifying cell phenotypes in small cell lung cancer (SCLC)
- Work in MATLAB to write code that used a Lucas-Kande optical flow algorithm to detect displacement of cells in high-resolution time-lapse images
- Use data from motion analysis to establish a statistically significant difference in motion between cell phenotypes for feature extraction
- Implement density-based (DB) clustering to detect the pixels making up each individual cell to bound them for later single-cell focused feature extraction; conduct further analysis using PyRadiomics (clinical bioinformatics Python package)

**Artificial Intelligence Lab** *2019 - 2020*
*Research Assistant*
- Research assistant in the Gini Lab at the University of Minnesota
- Created a basic chatbot using natural language processing (NLP) techniques in PyCharm to communicate nutritional information on user-inputted recipes
- Annotated chatbot data using SU Time, Stanford NLP Group's temporal tagger for text expressions
- Completed literature review on how to create automatic emotion recognition and classification in chatbots to develop a more empathetic UI

**Girls Got IT**
*Co-Founder and Coding Instructor* *June 2019 - August 2019*
- Taught 30 middle school girls introductory programming using Scratch
- Organized speaker events to provide students with pre-professional and work field exposure

## AWARDS

**Dean's Honors List** *2020 - 2021*
**Northwestern University Summer Undergraduate Research Grant (SURG) Recipient** *Summer 2021*
**Northwestern University Fletcher Undergraduate Research Grant (URG) Award Finalist** *Fall 2021*
- Nominated finalist for the most outstanding 2021 Summer Undergraduate Research Grant (SURG) project out of 221 participants

## SKILLS

**Computational:** Java, C/C++, HTML, Python, MATLAB, Microsoft Excel, Microsoft Word, Microsoft PowerPoint
**Languages:** English, Hindi