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# VASUNDHARA AGRAWAL

Evanston, IL | Work Authorization: OPT

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## EDUCATION

**Northwestern University, Evanston, IL**
Ph.D. Candidate in Biomedical Engineering – Imaging & Biophotonics | **GPA:** 3.73 — Expected 2022
- **Fellowships:** Fellowship in Leadership (2020) | Murphy Fellowship (2017)

**Illinois Institute of Technology (IIT), Chicago, IL**
B.S. in Biomedical Engineering – Cell & Tissue Engineering | **GPA:** 3.96 *(Summa Cum Laude)* — 2013 - 2017
- **Scholarships:** Toprani Research Scholarship (2016) | ARC Scholar (2015) | International Student Scholarship (2013)

## WORK EXPERIENCE

- **Backman Lab, Northwestern University: Graduate Research Assistant** — Fall 2017 – Present
  - Led a project on biophysical cell reprogramming to study chromatin conformation in stem cell differentiation.
  - Mentored interdisciplinary research teams as a part of the NSF Research Experience and Mentoring Program.
  - Designed functional genomics experiments, acquired imaging data, and performed analysis on large datasets.
- **Biomedical Engineering Department, Northwestern University & IIT: Teaching Assistant** — Spring 2020 & 2017
  - Supervised labs and mentored 40+ students in Quantitative Experimentation and Design.
  - Delivered presentations on Image Processing, held office hours, and trained 30+ students on MATLAB.
- **Medical Imaging Research Center (MIRC), IIT: Research Assistant** — Spring 2016 – Fall 2016
  - Developed Mathematical Models for lumpectomy margin assessment.
  - Co-built an analysis software to identify key parameters to improve accuracy in experimental protocols.

## LEADERSHIP & PROFESSIONAL DEVELOPMENT

- **Extern, Mars & Co – Global Strategy Consulting Firm** — Winter 2021
  - Practiced cases with Senior Consultants involved in Strategy Consulting as a part of the NU Externship program.
- **Diversity Committee Member & Ambassador, BMEGS** — Winter 2021 – Present
  - Worked with a team of graduate students in BME to develop SMART goals for DEI initiatives.
- **Vice President of Administration, Advanced Degree Consulting Alliance** — Fall 2020 – Present
  - Collaborated with consulting firms and professional development programs to organize events such as information sessions and workshops for advanced degree candidates.

## PROJECTS

- **Epigenetic Cell Reprogramming in-situ: A novel tool for Regenerative Engineering | Backman Lab:** Collaborated with multiple laboratories to analyze the influence of environmental cues on 3D chromatin architecture in stem cells.
- **Mathematical models governing diffusion of imaging agents in lumpectomy margin assessment | MIRC**: Utilized mathematical modeling to optimize quantitative molecular phenotyping of cell-surface tumor biomarkers.

## AWARDS AND HONORS

- Society of Women Engineers Region H Research Competition - Best in Show — 2017
- Tau Beta Pi Engineering Honor Society, Member — Since 2016
- Undergraduate Research Expo Winner, IIT — 2016

## COMPUTER SKILLS

- **Applications:** Microsoft Excel, Microsoft PowerPoint, Adobe Photoshop, and MATLAB (Image Processing Toolbox).
- **Languages:** Strong in Python, MATLAB, and R. Intermediate in C++ and JAVA.

## PATENT & PUBLICATIONS (of 5 publications and 3 conference presentations)

- "**Foldable Walker**". International Patent, WO2018213021A1, issued November 22, 2018.
- Daneshkhah, A., **Agrawal, V.**, et al. "**Evidence for possible association of vitamin D status with cytokine storm and unregulated inflammation in COVID-19 patients**." *Aging Clinical and Experimental Research* 32.10 (2020).
- **Agrawal, V.**, et al. "**Chromatin Reprogramming via Contact Guidance-Induced Nuclear Deformation Promotes Stem Cell Differentiation** (Submitted to Nature BME in 2021).

**INTERESTS** | Painting, Playing Chess and Reading books on Epigenetics.