

Brooke C Braman

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EDUCATION

University of Minnesota

Doctor of Medicine
USMLE Step 1 score: 267

Minneapolis, MN
May 2023

University of Minnesota

Bachelor of Biomedical Engineering, Spanish Studies minor
Summa cum laude with high distinction

Minneapolis, MN
May 2018

Thesis: Moment series analysis of bioluminescent images of genetically engineering murine gliomas

RESEARCH

Department of Radiation Oncology, University of Minnesota Medical School
and Department of Otolaryngology, University of Minnesota Medical School

Minneapolis, MN
January 2022 - Present

Researcher

Advisors: Christopher Wilke, MD, PhD and Sobia Khaja, MD

- Investigated the impact of the COVID-19 pandemic on head and neck cancer outcomes

Department of Radiation Oncology, University of Minnesota Medical School
and Department of Biomedical Engineering, University of Minnesota

Minneapolis, MN
January 2019 - Present

Researcher

Advisors: Christopher Wilke, MD, PhD and David Odde, PhD

- Established primary glioma cell lines with resistance to chemoradiotherapy
- Characterized biophysical properties of treatment resistant tumor cell lines
- Initiated development of a murine model of glioma implementing a standard of care therapy equivalent
- Developed k-means clustering MATLAB implementation to quantify tumor-directed immune response from immunohistochemical staining data
- Advised and mentored undergraduate researcher

United Heart and Vascular Clinic, Allina Health

St. Paul, MN

Research Scientist

March 2018 - March 2019

- Assisted in the execution of four clinical research trials aimed at personalizing cardiac resynchronization therapy
- Developed and maintained graphical user interfaces, algorithms, and software tools for analysis and visualization of electrocardiographic data
- Quantitatively analyzed high volume data for biventricular pacemaker optimization in heart failure

Department of Biomedical Engineering, University of Minnesota

Minneapolis, MN

Undergraduate Researcher

November 2015 - May 2018

Advisor: David Odde, PhD

- Administered genetically engineered glioblastoma murine models at all levels, including *in vivo* oncogenic plasmid delivery, murine husbandry, and tumor extraction and fixation at disease end-stage
- Conducted longitudinal small animal bioluminescence imaging and brain slice fluorescence imaging while optimizing existing and developing new imaging protocols
- Developed MATLAB script to quantitatively measure statistical moment series parameters of bioluminescent tumor images to calculate tumor growth and architecture metrics

LEADERSHIP AND SERVICE

Medtronic Twin Cities Marathon Medical Volunteer

St. Paul, MN
October 2019 - Present

- Provided medical care to participants of the Twin Cities Marathon at the finish line medical tent
- October 2020 event cancelled due to COVID-19 pandemic

Peer Study Support and Tutoring, University of Minnesota Medical School Team Member

Minneapolis, MN
August 2020 - May 2021

- Provided academic coaching and tutoring to first-year medical students
- Developed study materials for first-year medical students

Medicine and Machine Learning Student Group, University of Minnesota Medical School Co-Founder and Executive Board Member

Minneapolis, MN
January 2020 - March 2021

- Established student interest group for machine learning applications in medicine
- Developed student group constitution and programming
- Wrote grants and applied for funding sources

PUBLICATIONS AND PRESENTATIONS

Papers

- Shamsan GA, Liu CJ, **Braman BC**, Rathe SK, Sarver AL, Ghaderi N, McMahon MM, Klank RL, Tschida BR, McFarren S, Rosato PC, Masopust D, Sarkaria JN, Clark HB, Rosenfeld SS, Largaespada DA, Odde DJ. "Differential migration mechanics and immune responses of glioblastoma subtypes." *Submitted. Preprint*, bioRxiv 2022.06.26.497270; doi: <https://doi.org/10.1101/2022.06.26.497270>
- **Braman BC**, Brown CD, Harbin MM, et al. "Quadripolar left ventricular leads and electrical dyssynchrony in heart failure patients with cardiac resynchronization therapy," 2022, *Submitted*
- **Braman BC**, Amin K, Khaja S. "An enlarging neck mass with apparent multi-site involvement in a 70-year-old man." *In preparation*
- **Braman BC**, Robinson CR, Linden MA, Yohe SL, Boothby A, Allred J, Vercellotti GM, Monteagudo LA, Kao RL. "Hemophagocytic lymphohistiocytosis secondary to occult aggressive natural killer cell leukemia in an older Caucasian patient." *In preparation*

Oral Presentations

- **Braman BC**, "Cellular Neuroanatomy," UMN Brain Tumor Program Neuro-Oncology/Neuroscience Crash Course, Minneapolis, MN, August 2020

Posters

- **Braman BC**, Shamsan GA, McMahon MM, Odde DJ, Wilke CT. "The Impact of Chemoradiotherapy on Biophysical Properties of Glioblastoma Utilizing a Novel Murine Model." ASTRO Annual Meeting, San Antonio, TX, October 2022
- **Braman BC**, Lui CJ, Shamsan GA, Klank RL, McFarren S, Tschida BR, Rosenfeld SS, Largaespada DA, Odde DJ, "Characterization of Survival and Proliferation in Glioblastoma Mouse Models," Biomedical Engineering Society National Conference, Minneapolis, MN, October 2016

HONORS AND AWARDS

- Alpha Omega Alpha (AOA) Medical Honor Society, May 2022-present
- University of Minnesota Medical School MCAT Dean's Scholarship (full tuition scholarship for 4 years), 2019-2023
- University of Minnesota Benston Family Scholarship, 2014-2018, 2019-2021
- University of Minnesota Physical Sciences in Oncology Pilot Project Junior Investigator Grant, 2017
- U.S. Department of Education President's Scholar Semifinalist, 2014

HOBBIES AND INTERESTS

- Marathon running, Medtronic Twin Cities Marathon Finisher 2015, 2016, 2017
- Cycling
- Skiing, alpine and cross country
- Tennis
- Scuba Diving, Professional Associate of Diving Instructors Open Water Scuba Diver Certification, 2014
- Cooking