**Madeleine "Mac" McDonald Gagné**
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## EDUCATION

- **PhD in Operations Research**
  North Carolina State University, Engineering Department (2021-Present)
- **Bachelor of Science in Mathematically Applied Strategy, Graduation with High Distinction**
  Duke University, Mathematics & Program II Departments (2017-2021)
  Duke SPIRE Fellow & AGS Summer Fellow
- **International Baccalaureate High School Graduate, Valedictorian.**
  Dublin Coffman High School (2013-2017)

## PROFESSIONAL EXPERIENCE

**Northrop Grumman Space Systems OR Engineering Intern & Part Time Employee | Sterling, VA 2021-**

- Brooke Owens Intern to the Future Concepts Team. Continuing part-time. Focus on space wargaming.

**NOAA National Weather Service Operations Intern | Washington, D.C. 2020**

- Operations intern studying fire weather prediction and emergency management procedures.

**CIRA Colorado State University Work-Study Student | Alexandria, VA 2020**

- Aided in the creation of atmospheric hurricane and tropical depression models using Python.

**Center for Strategic and International Studies Research Intern | Washington, D.C. 2018 and 2019**

- Quantitative research intern working for the Defense Industrial Initiates Group. Focus on defense acquisition trends, budgetary analysis, policymaking, and artificial intelligence.

**Duke University Work-Study Student and Research Assistant to Dr. David Siegel | 2017-2021**

**Georgia State Language Research Center Primatology Intern | Atlanta, GA 2016**

## RELEVANT RESEARCH

- Graduation with High Distinction Capstone Research Thesis mathematically modeling the decision strategy of triage during high-risk situations with linear programming (2020-2021).
- Developed a study at NOAA/NWS that investigated the role satellites played in the operations of the 2019 Kincade Fire (2020-2021).
- Developed a carbon-neutral DHA-based algae biodiesel with *The Collins-Miller Project*, which became the subject of conducted IB Program extended essay (2011-2017).
- Created a game theoretic math model on the evolution of defense strategies in non-human primates to learn about the evolution of decisions. Research was conducted at the Duke University Lemur Lab while working under Mathematics DUS Dr. Hubert Bray (2019).

## PRESENTATIONS, LEADERSHIP EXPERIENCES & AWARDS

**TEDx Talk *Stories and Simulations: A Living Proof* | Duke University (2020)**

**Kincade Fire Operations Research Presentation | NOAA NWS, NASA, AMS, Cal Fire (2020)**

**TEDx Talk *Paper Dreams and the Pentagon* | Columbus, Ohio (2016)**

**Presentation of *The Collins Miller Project* at the Pentagon | Washington, D.C. (2016)**

- Presented to Deputy Assistant Secretary to the Navy's Department of Energy

**The Lyceum, Founder & Inaugural President | Duke University (2020-2021)**

- Created and led Duke's first interdisciplinary and diversity-centric mathematics club.

**Freshly Squeezed Pulp, Cofounder, Co/President, Writer, Editor & Voice Actress (2018-2021)**

- Notable production includes the group's *The Adventures of Tarzan*®.

**Awards:** NC State College of Engineering Graduate Merit Award (2021), Duke Mathematics Community Service Award (2021), AMS First Place Student Presenter (2021), Brooke Owens Fellow (2021), Janice P. Duncan Memorial Award (2019), Explorer's Club Member (2020).

## SOFTWARE AND LANGUAGE PROFICIENCIES

Python, RStudio, Linux, Excel, Microsoft Word, Qualtrics. English and Proficient Spanish