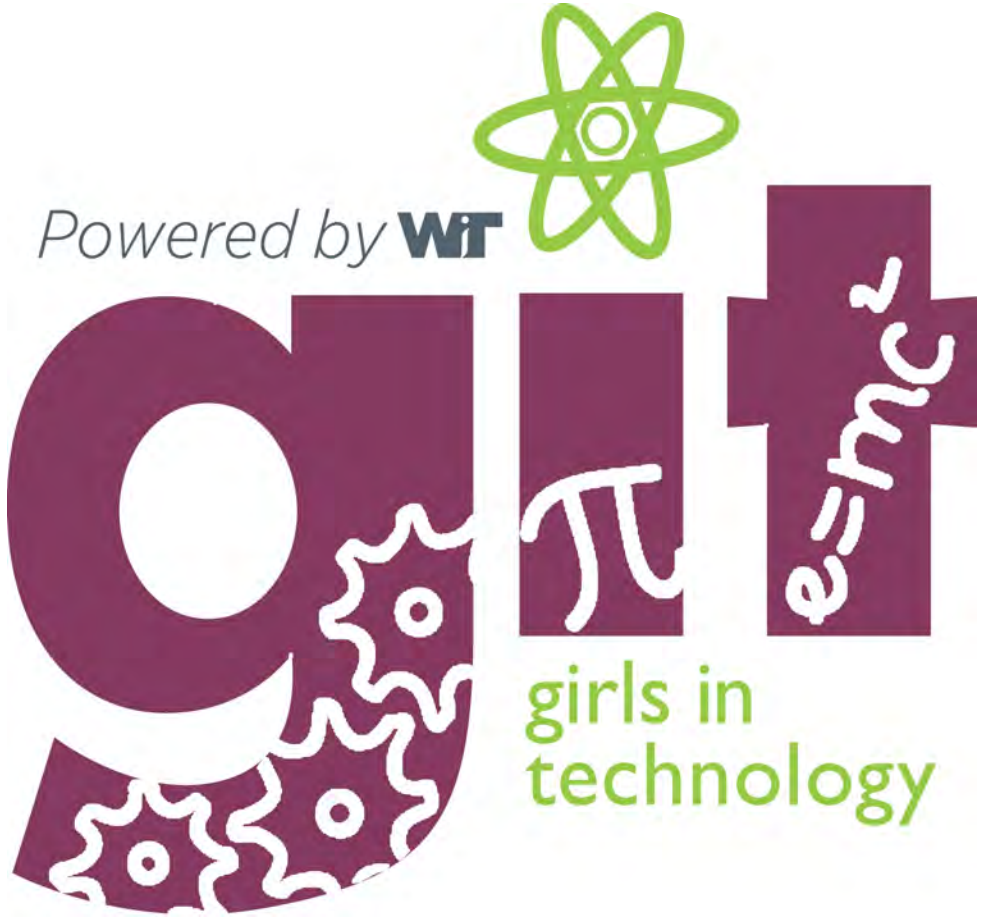


Living & Working in Space

Girls in Technology

GIT.Connect Program

March 5, 2022

Agenda

- Welcome and Overview (10 min)
- NASM "*Living & Working in Space*" (40 min)
- Special Guest(s) (35 min)
- Concluding Remarks & Session Poll (5 min)

Girls In Technology (GIT)

Vision: To significantly increase the number of girls who pursue STEM education and ultimately join the ranks of other successful women in STEM careers.

Mission: Girls In Technology (GIT) will engage and inspire girls in grades 6 through 12 in the Washington D.C. Metro Region, *especially underserved girls*, to enable them to envision a path for education and career opportunities in Science, Technology, Engineering and Math (STEM). Our programs will offer successful female role models, targeted education, endearing support, and affinity. *We will hold ourselves accountable to focus on GIT girls-first and foster diversity and inclusion (and belonging).*

Mentor Protégé Program
Connects HS girls with 70~ professional women mentors, and over one-hundred like-minded girls, that will help identify pathways to STEM careers.

Sharing Our Success (SOS) Program
Connects MS girls with STEM organizations, 100~ girls and professional women in a workshop setting that provides encouragement to explore STEM.

Cyber Patriot Girls (CPG) Program!
Connects girls with the Air Force Association's CyberPatriot program (www.uscyberpatriot.org) as part of competitive teams.

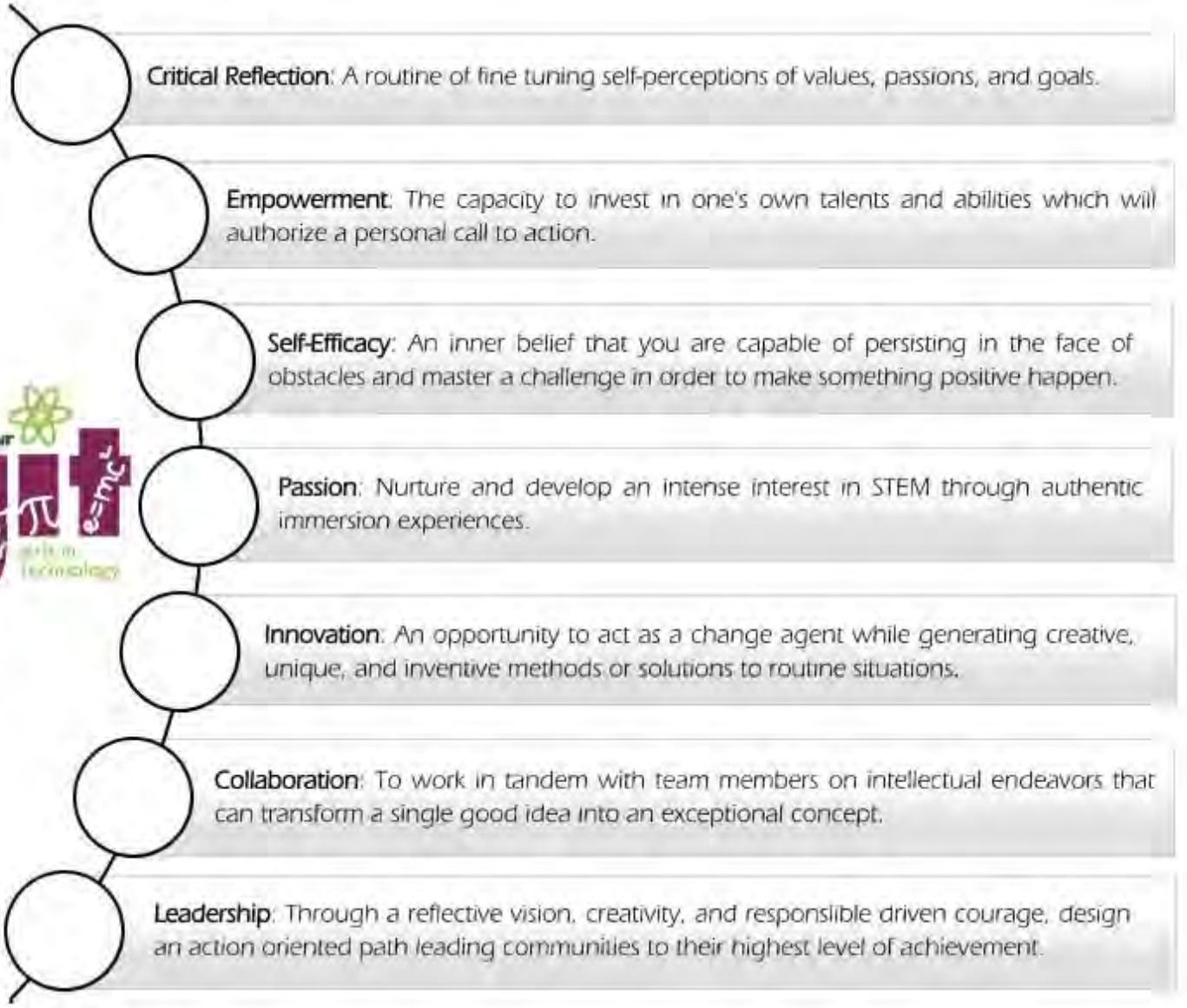
Scholarships and Awards Program
Provides GIT members an opportunity to win scholarships that will help enrich their lives and reduce financial barriers to participate in STEM-related activities.

Alumnae Program – NEW!
Connect post high school girls to the GIT community, where we shall foster professional and personal growth, while encouraging Alumnae to "pay it forward" by enriching the STEM experience of GIT participants.

GIT.Connect Program - NEW!
Supplements other GIT programming to help expand exposure to STEM topics of interest in more depth than other GIT programs may allow.

Powered by WiT
girls in technology

Seven Core Beliefs



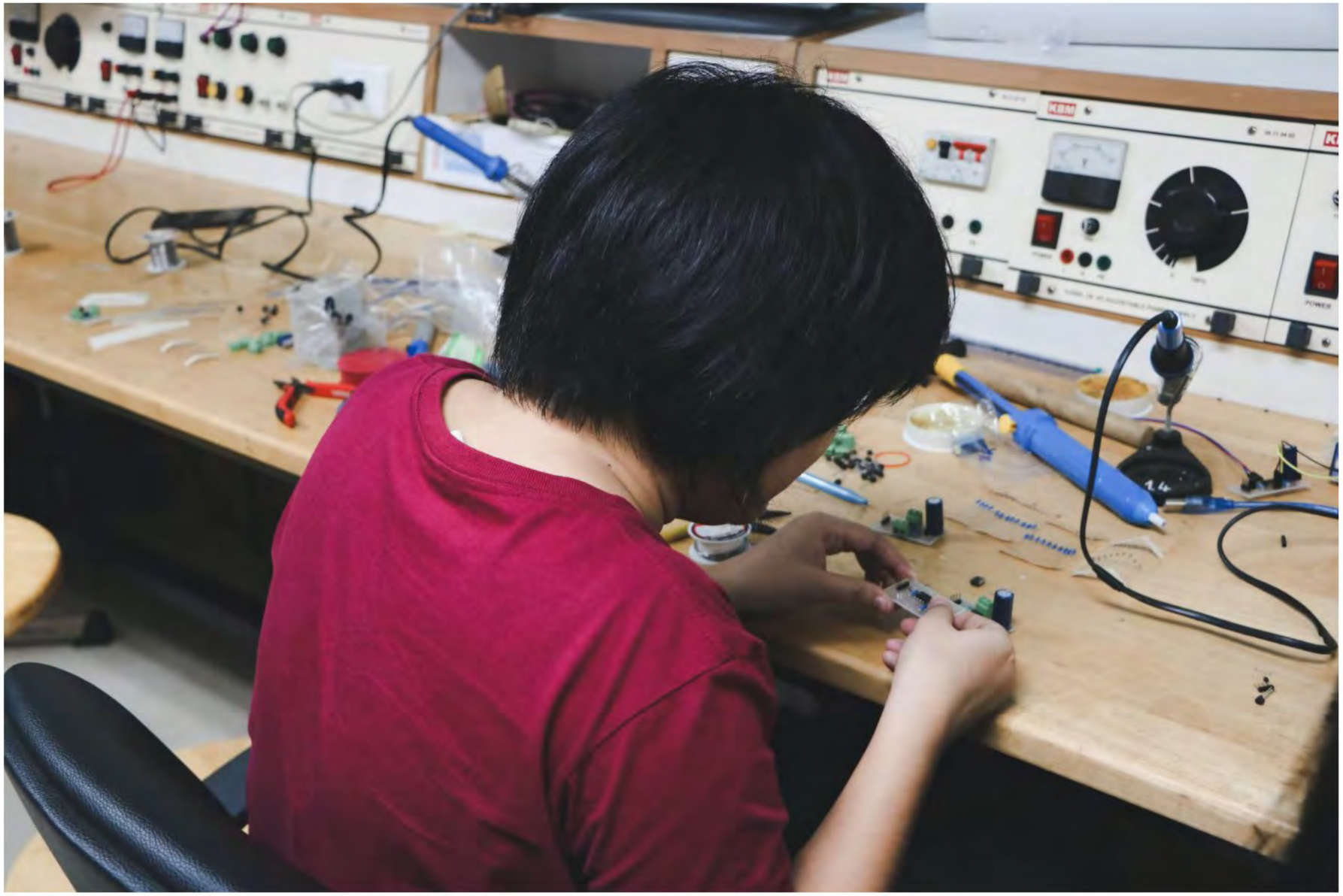
Powered by WIT girls in technology

Ice Breaker

This game is only for the participants.
Top 5 winners get a PRIZE!

Top 5 Winners:
Kancharla
Aamani Koltla
Siena Corbett
Mira G
McKenna

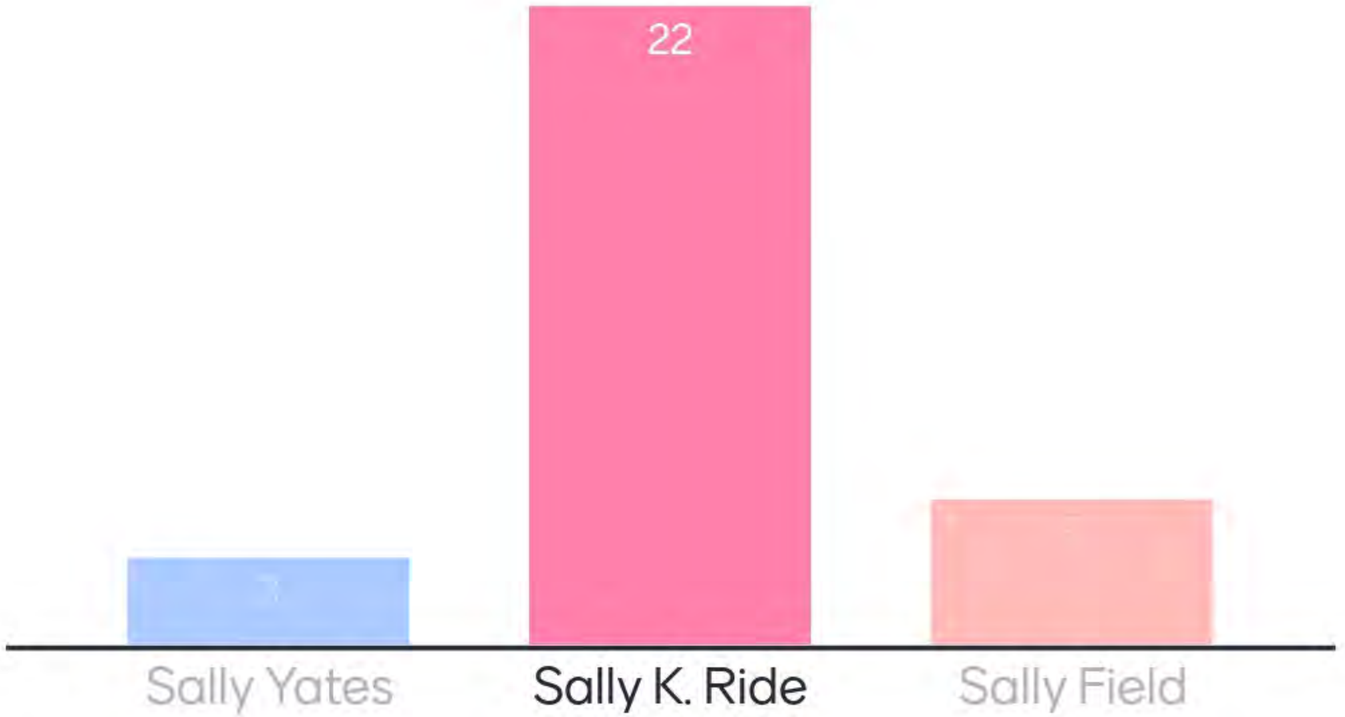
Congratulations Ladies!



Ice Breaker - Win a prize!

Who was the first American female astronaut?

Mentimeter

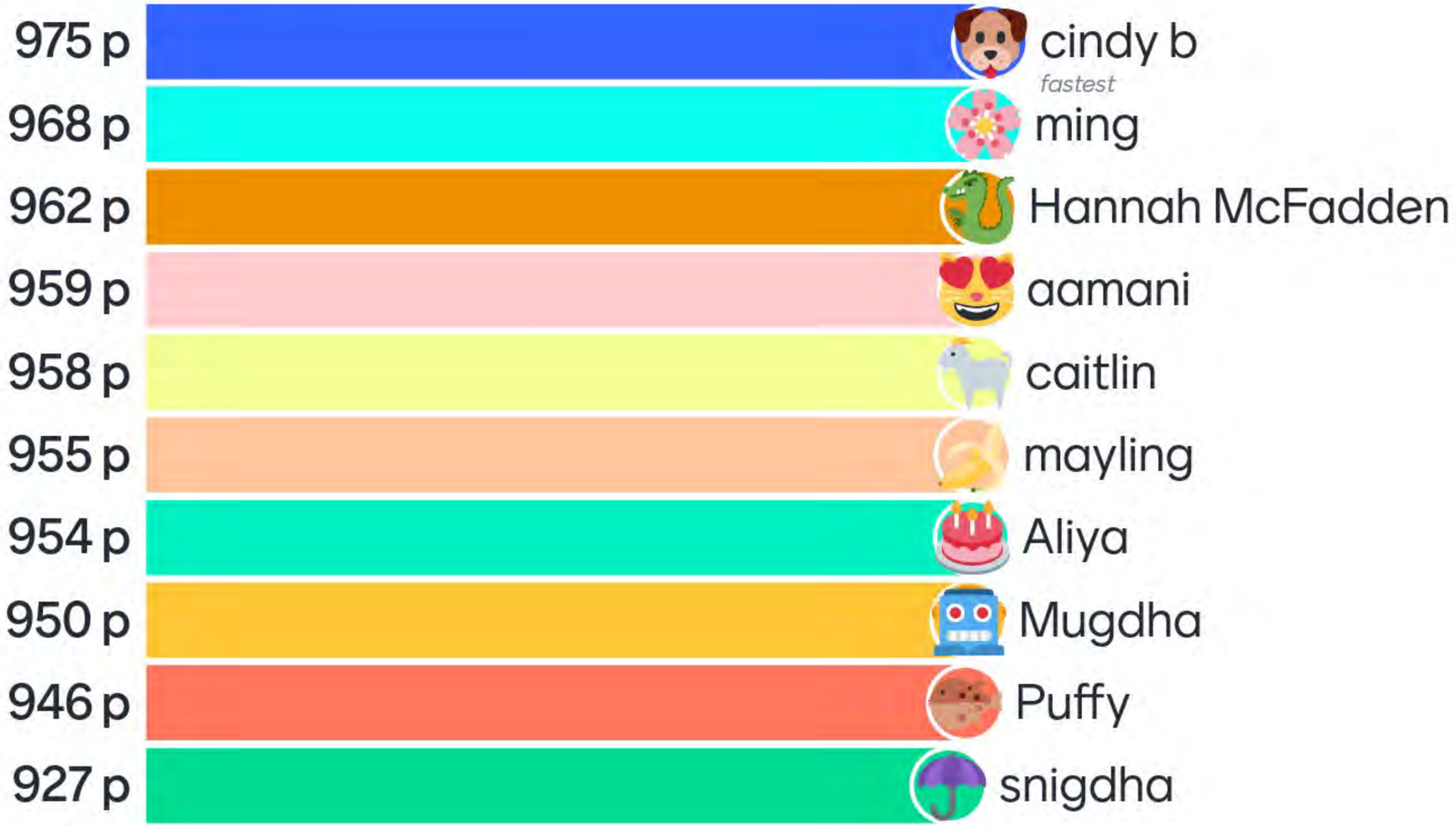


30

Sally K. Ride

Leaderboard

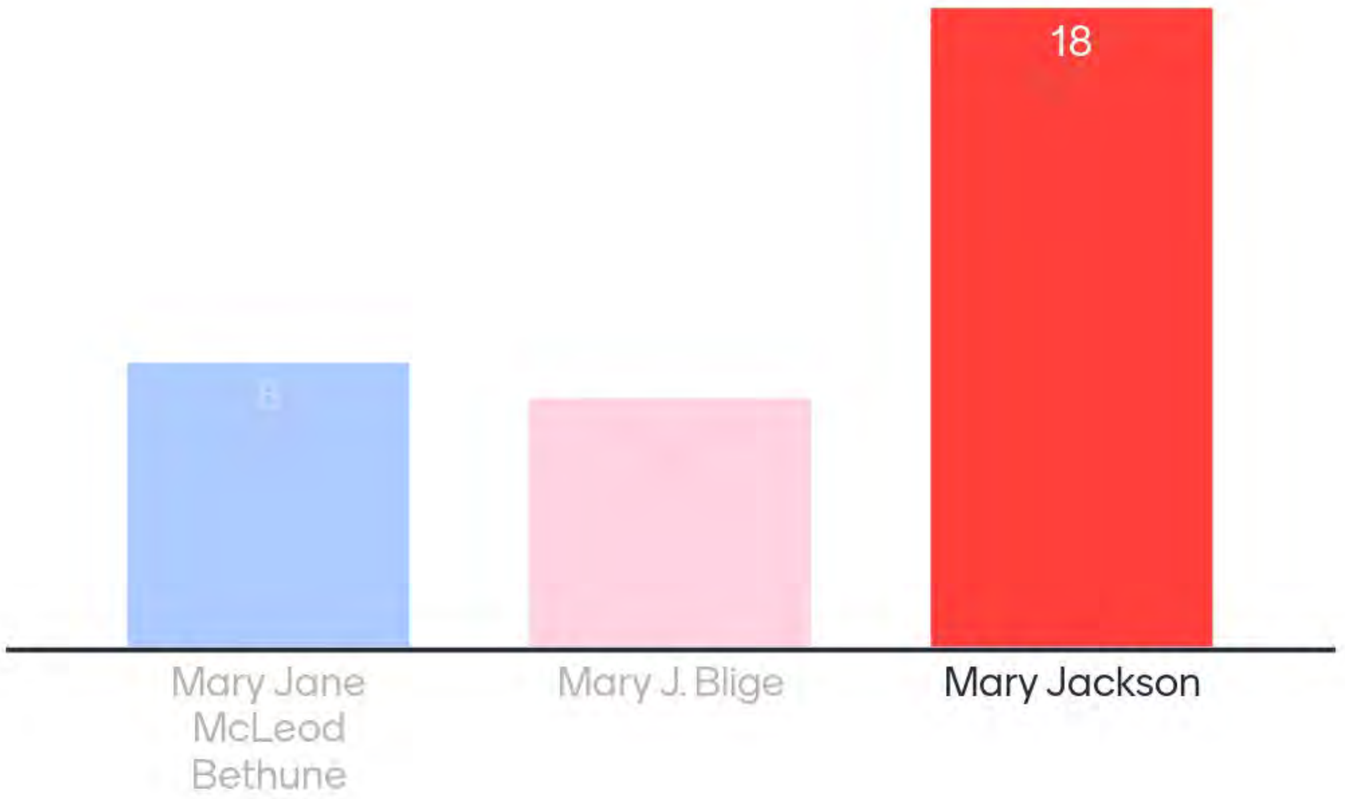
Mentimeter



30

Who was the first Black female engineer in NASA?

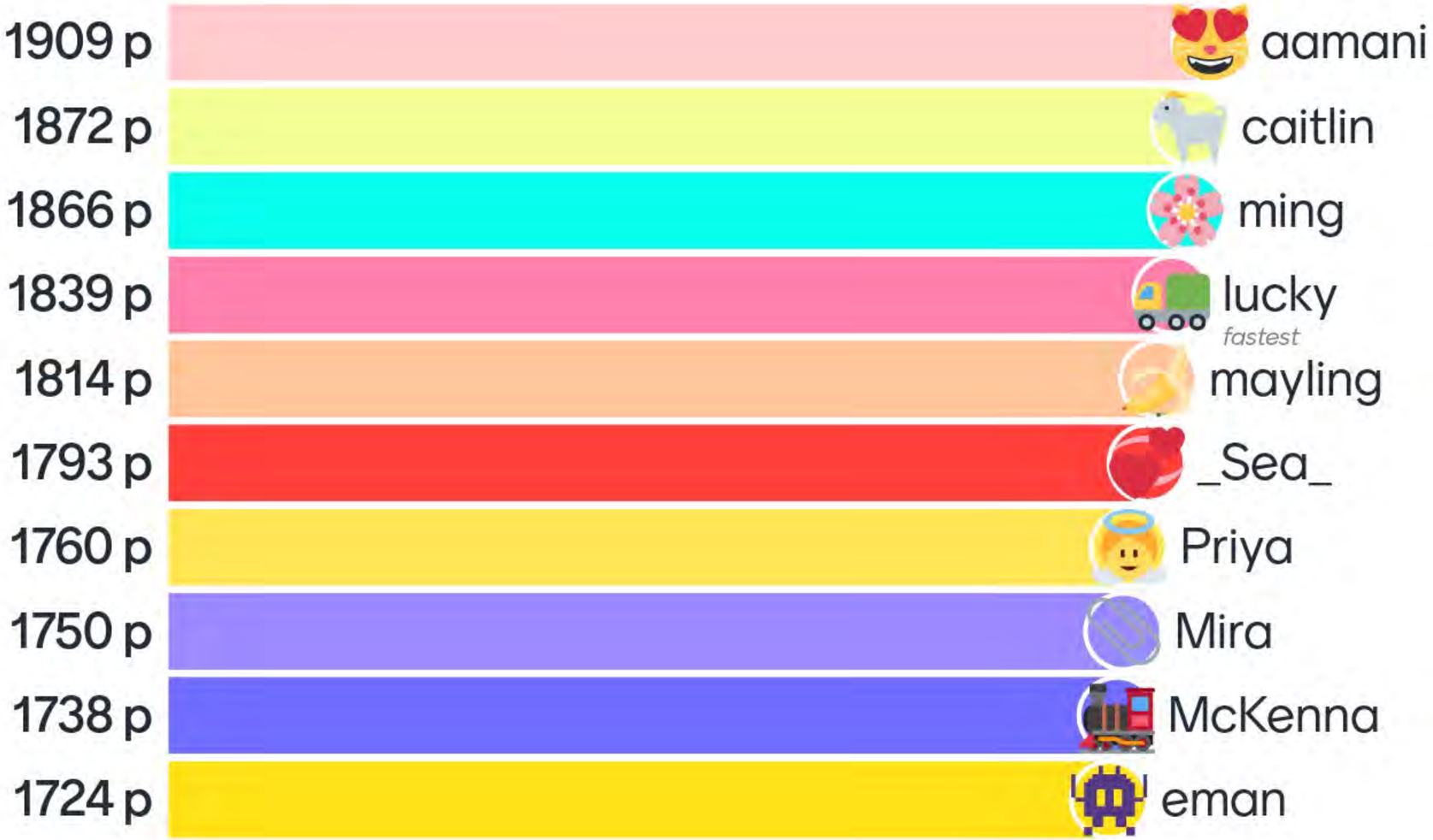
Mentimeter



33

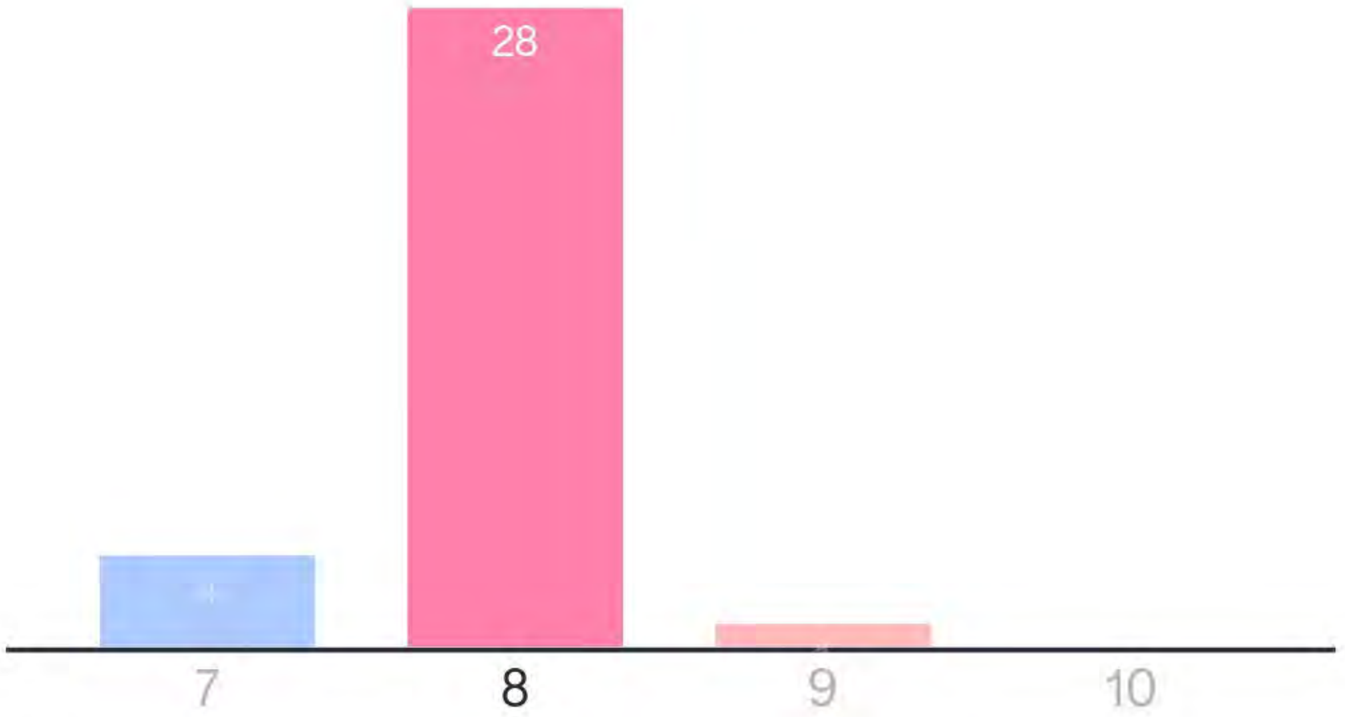
Mary Jackson

Leaderboard

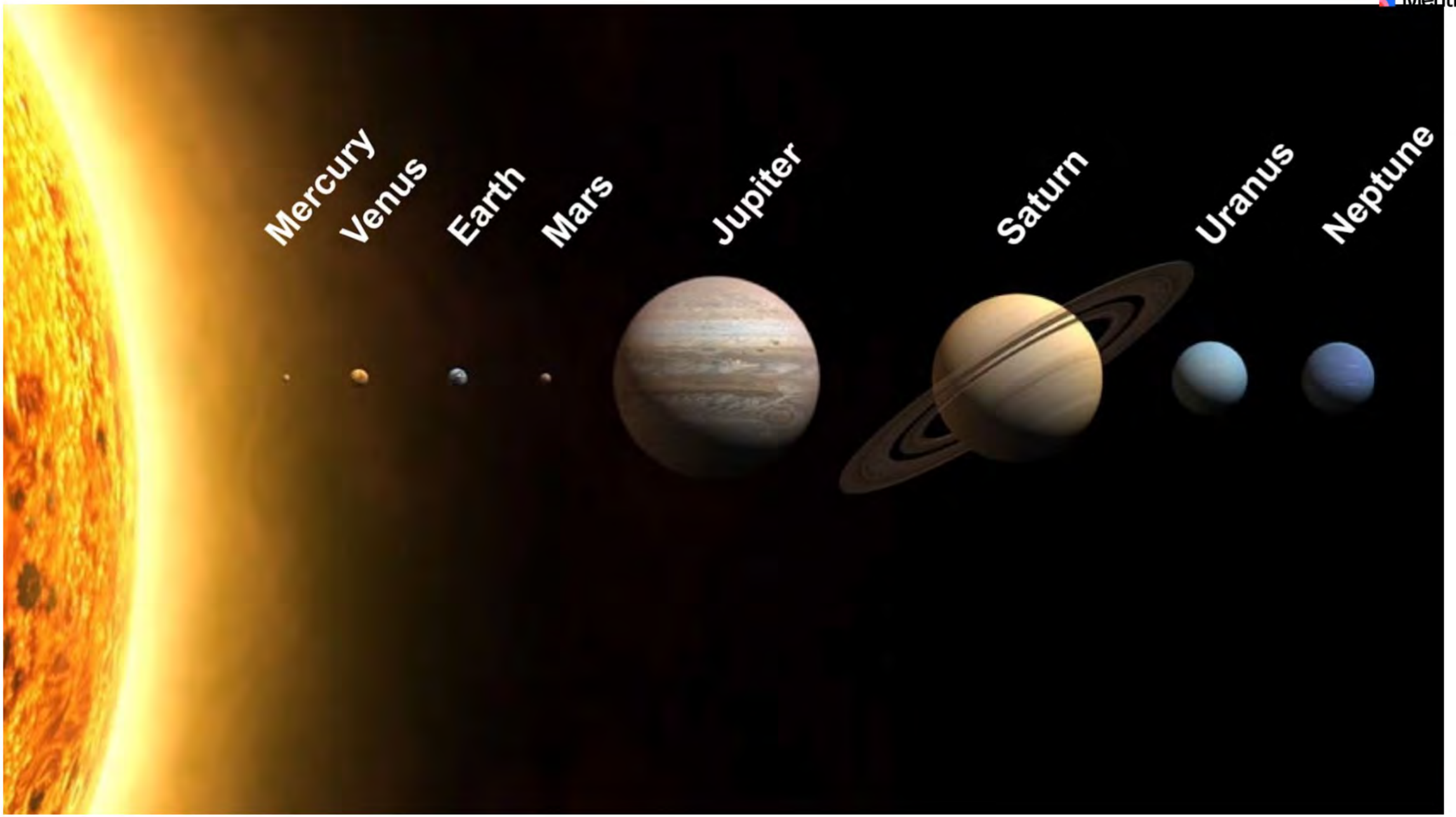


How many major planets are there in our solar system?

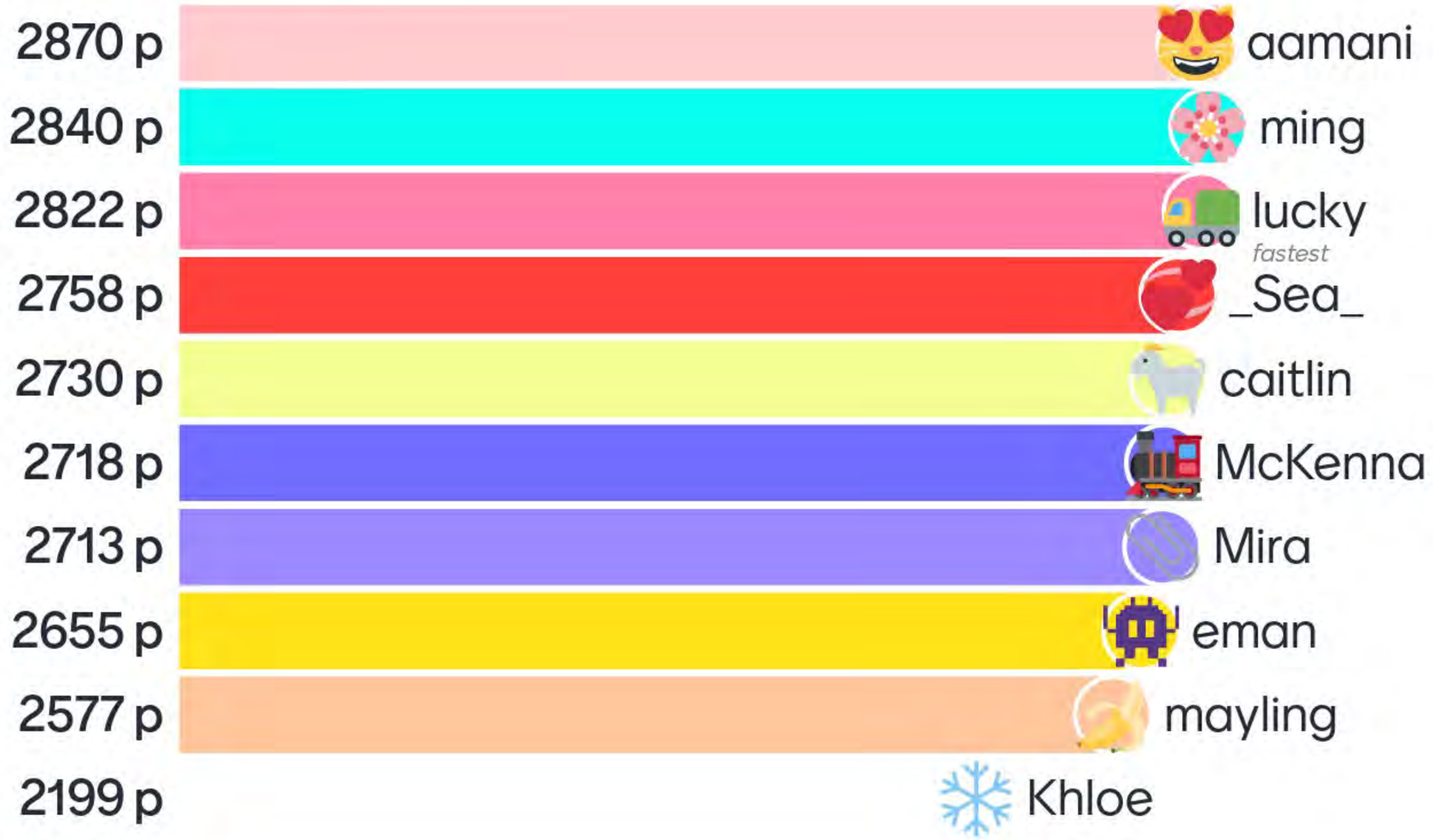
Mentimeter



33

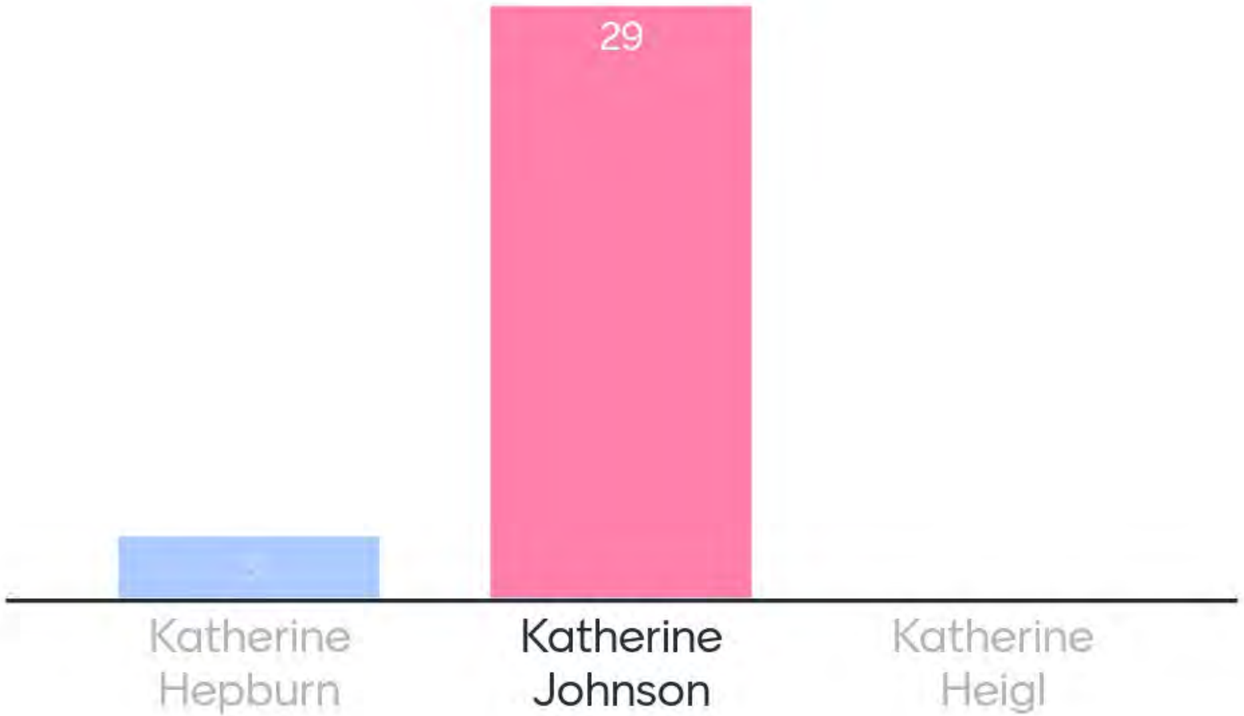


Leaderboard



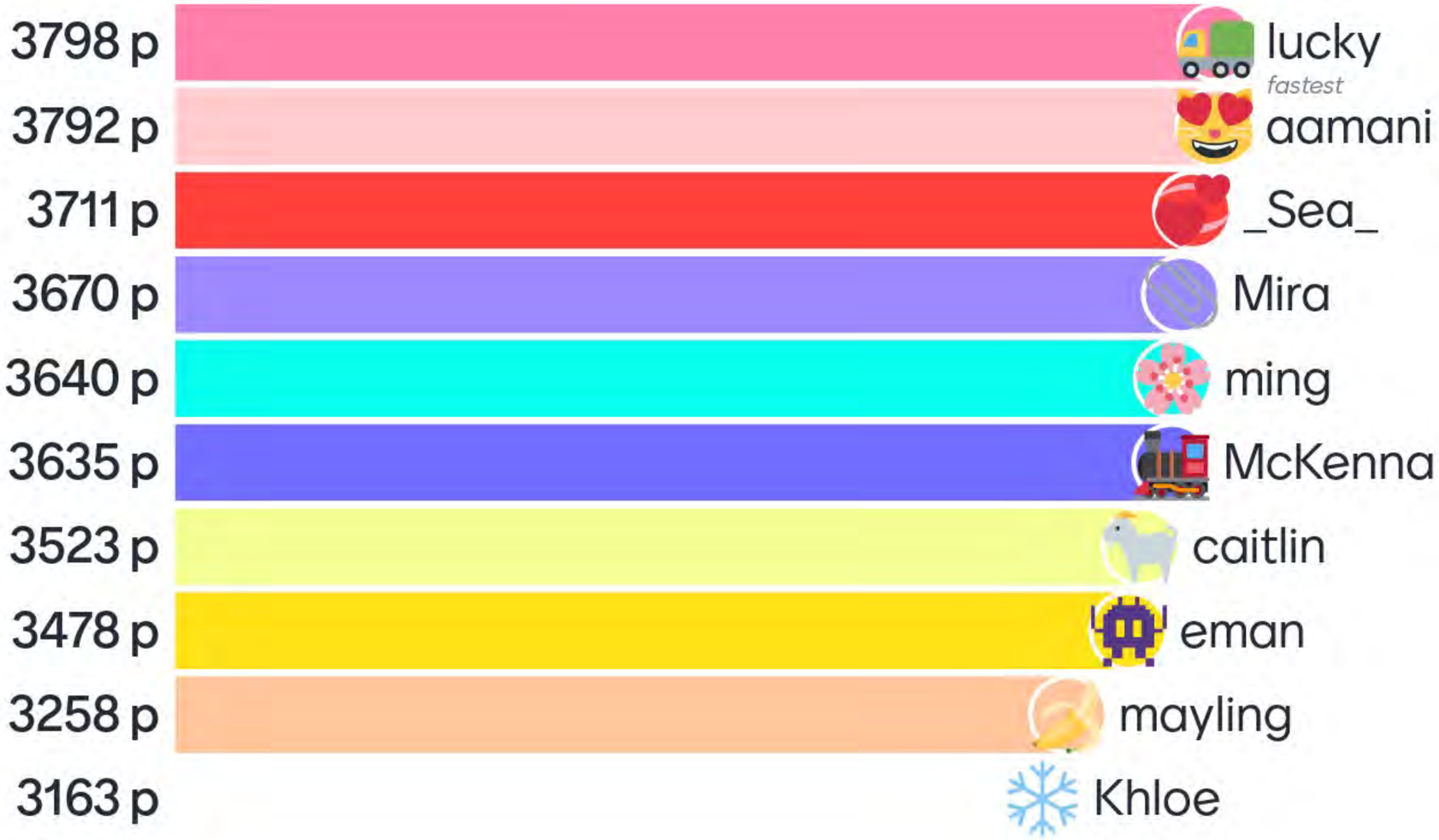
This mathematican helped send the first astronauts to the moon in the 1960s but was rejected from NASA the first time she applied?

Mentimeter



32

Leaderboard



GIT.Connect Program

Part 1: Smithsonian Institution – National Air & Space Museum (NASM)

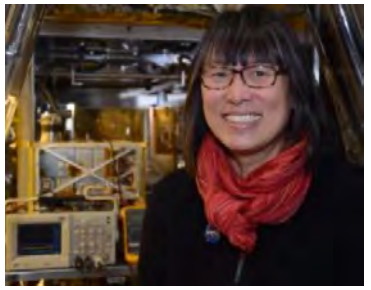
Bevin James, Explainers Program Coordinator

Live Demonstration

Living & Working in Space!

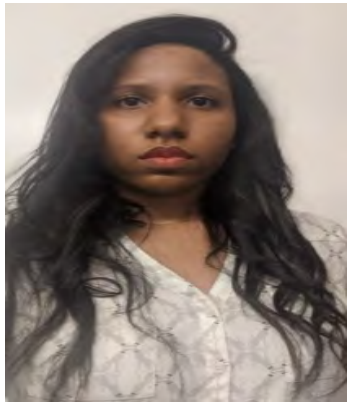
GIT.Connect Program

Part 2: Guest Speakers



1. Florence Tan, NASA Deputy Chief Technologist for Science

- She holds a Bachelor of Science degree in electrical engineering from University of Maryland, and a Master of Science in electrical engineering and Master of Business Administration from Johns Hopkins University. Florence is the Chair of the Small Spacecraft Coordination Group (SSCG) at NASA Headquarters. She is also the Deputy Chief Technologist (DCT) for NASA's Science Mission Directorate (SMD). In her role as SSCG Chair, she leads the SSCG to coordinate and develop NASA's strategy and vision for small spacecraft in science, exploration missions, and technology activities. As the DCT for SMD, she supports the SMD Chief Technologist to survey and assess technology needs for NASA's science.



2. Jessica Fayne, NASA Jet Propulsion Lab

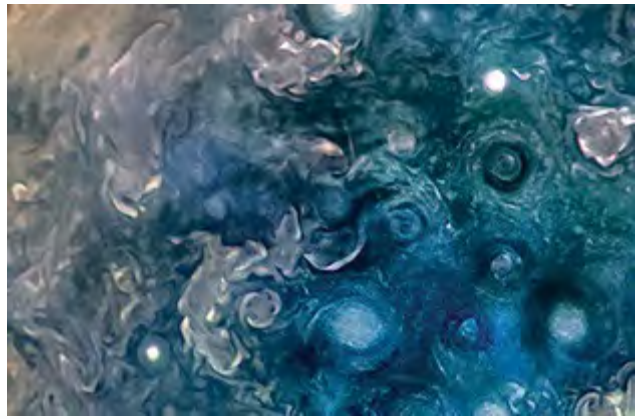
- Jessica graduated with a Master of Science in Geographic and Cartographic Sciences from in GMU in 2015 and currently in the Ph.D. program at the University of California, Los Angeles (UCLA). Jessica has received academic grants such as the Future Investigators in NASA Earth and Space Science and Technology (FINESST), the Earth Science Information Partners (ESIP) Research Incubator, the John Mather Nobel Scholarship for Innovative Scientific Research at NASA Award. She has five published first-author peer-reviewed articles, 11 co-author articles, two book chapters, and two datasets.

3. Saniya LeBlanc, Ph.D., GWU Associate Professor, Mechanical & Aerospace Engineering Dept.

- Her research goals are to create next-generation energy solutions leveraging advanced materials and manufacturing techniques. She was a Churchill Scholar at University of Cambridge where she received an MPhil in engineering, and she has a BS in mechanical engineering from Georgia Institute of Technology. In 2018, the American Society of Engineering Education named Dr. LeBlanc one of its "20 Under 40" high-achieving researchers and educators, and she received the National Science Foundation CAREER award in 2020. (See presentation here)

SCIENCE

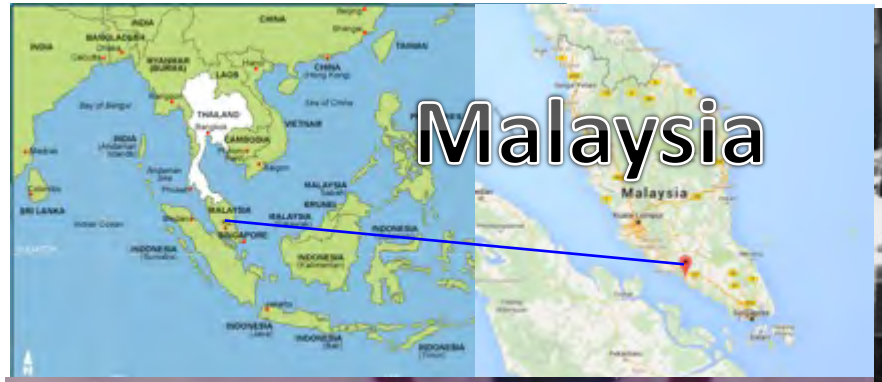
National Aeronautics and Space Administration

From Malaysia to Mars and Beyond

Florence Tan
Deputy Chief Technologist
NASA Science Mission Directorate

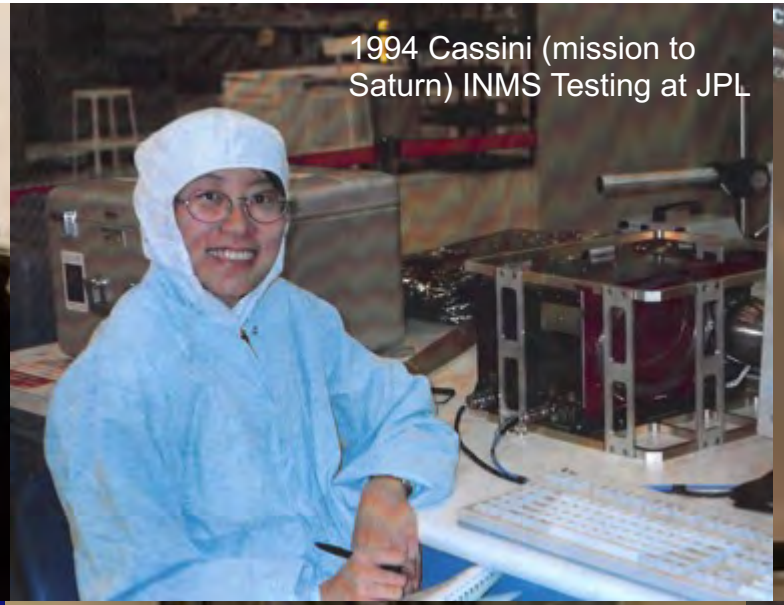
Mar 2022

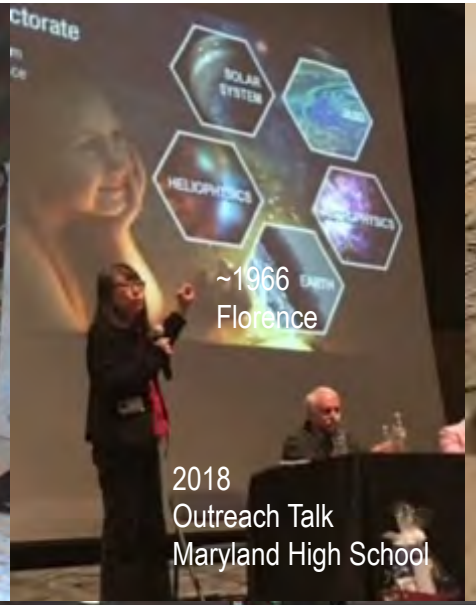


- I like board games, yoga, teaching yoga, reading especially books on language and science fiction, any word puzzles (think Wordle, Octodle, Spelling Bee, Boggle, Bananagrams, Scrabble), orienteering, people
- I speak 3 languages
- My husband and daughters are working in the STEM field
- I am grateful to enjoy the support of my parents, siblings, husband, and many others in my career

It takes a village

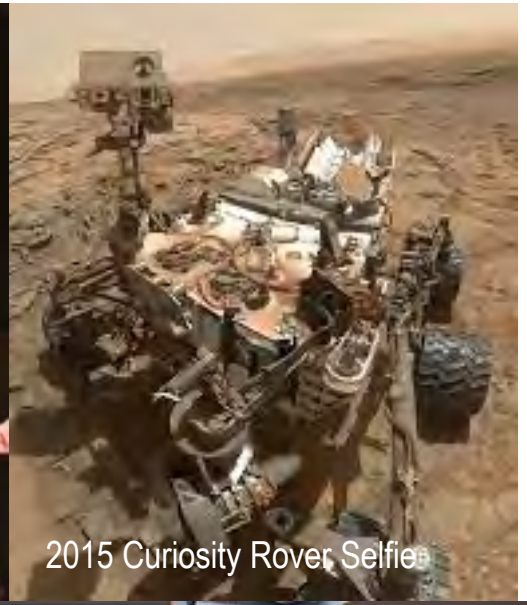

1986
MOXE testing
Goddard Space Flight Center


1994 Cassini (mission to Saturn) INMS Testing at JPL



~1966
Florence

2018
Outreach Talk
Maryland High School


2015 Curiosity Rover Selfie


July 2001
Citizen Tan


2009
Curiosity Instrument Suite: SAM
Goddard Space Flight Center


2012 Curiosity Rover Landing on Mars

It takes a team

Mar 2021 NASA’s Curiosity Mars Rover Takes Selfie With ‘Mont Mercou’


Cassini

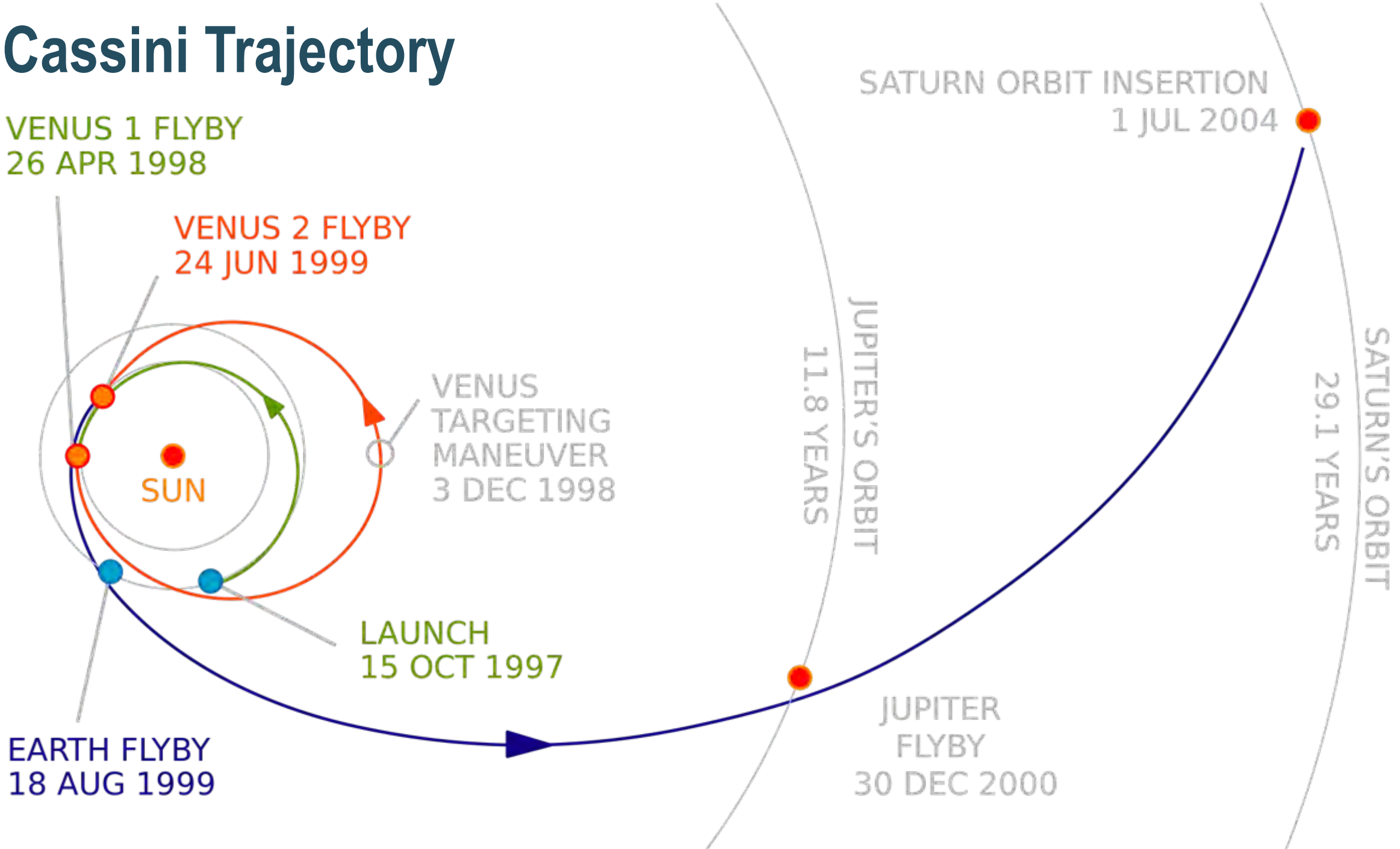
Cassini

Observing Earth From Saturn

Gravity Assist

Click the video on the left to play on YouTube

Cassini Trajectory



Human Mars Exploration

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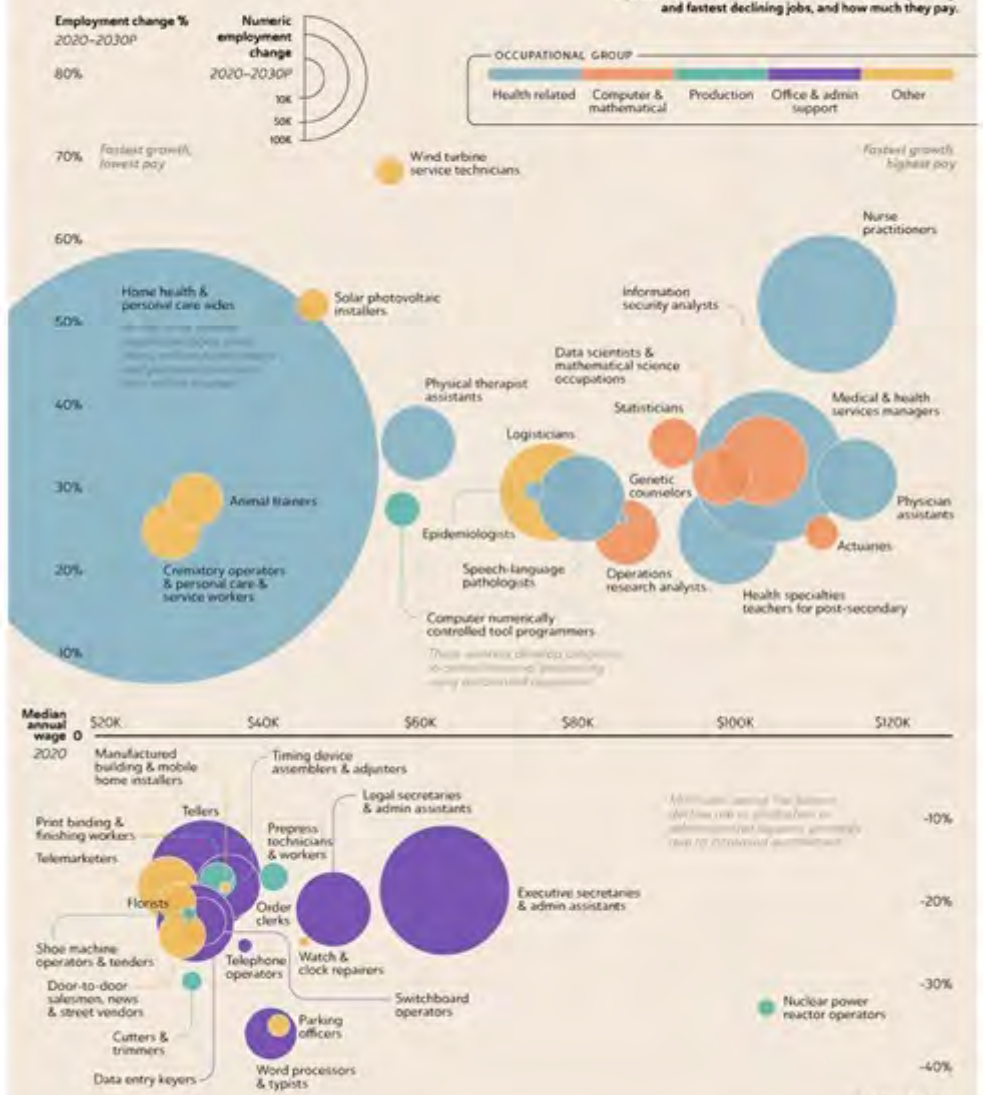
The 20 Fastest Growing + Declining Jobs

OVER THE NEXT DECADE

The U.S. Bureau of Labor Statistics predicts that 11.9 million new jobs will be created from 2020 to 2030—a growth rate of 7.7%. **Below, we show the fastest growing and fastest declining jobs, and how much they pay.**

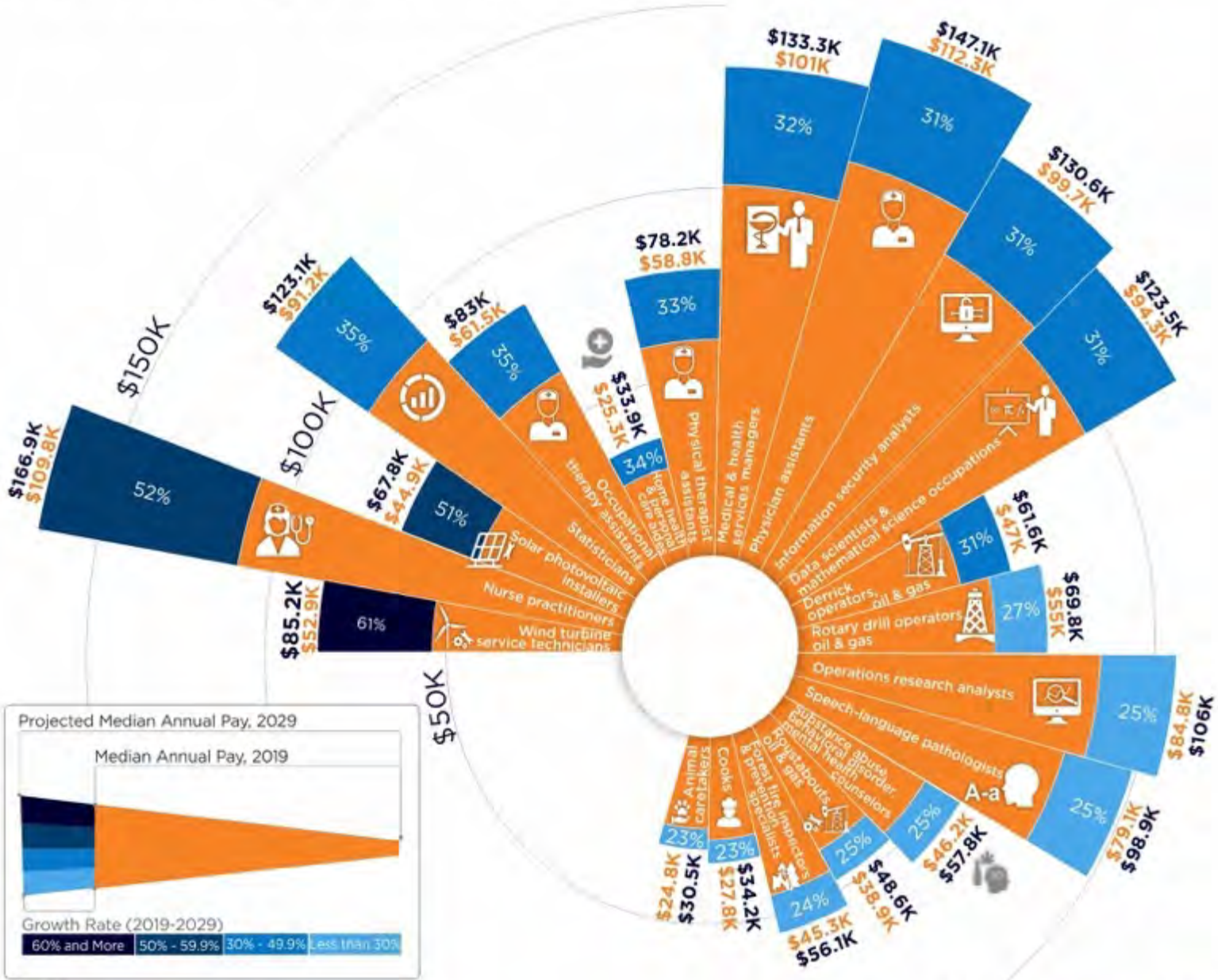


https://www.visualcapitalist.com/the-20-fastest-growing-jobs-in-the-next-decade/

VISUAL CAPITALIST

Fastest Growing Occupations in the U.S.

Median Annual Pay & Its Growth Projection (2019-2029)



Article & Sources:
https://howmuch.net/articles/fastest-growing-occupations-in-the-US
U.S. Bureau of Labor Statistics - https://www.bls.gov/

howmuch.net

NASA Satellite Remote Sensing and Hydrology

Jessica V. Fayne
University of California - Los Angeles

GIT

GIT.Connect
Session 2

Jessica Fayne is a student affiliate of NASA-JPL. This work was done as a private venture and not in the author's capacity as an employee of the Jet Propulsion Laboratory, California Institute of Technology.

On Dec 26, 2004, a 9.1 magnitude earthquake struck off the coast of Sumatra, Indonesia, triggering a tsunami and devastating the region, leaving over 220,000 people dead.

I was in high school.

With climate change, we have seen an increase in water-related natural disasters.

- High School Diploma — 2007
  - Westfield High School Chantilly, Virginia
- Bachelor of Arts 3yrs:
  - Hampton University Hampton, Virginia
  - Political Science –International Law and Architecture
- Graduate Certificate 1yr "½ Masters":
  - American University Washington, DC
  - International Relations– Cross Cultural Communication
- Master of Science 2yrs:
  - George Mason University Fairfax, Virginia
  - Geographic and Cartographic Sciences– Remote Sensing and Transportation Engineering
- Pre-PhD non-degree, remote, 2yrs :
  - University of South Carolina
- PhD 5yrs :
  - University of California, Los Angeles
  - Geography – Radar Hydrology

2022

- High School Diploma — 2007
  - Westfield High School Chantilly, Virginia
- Bachelor of Arts 3yrs:
  - Hampton University Hampton, Virginia
  - Political Science –International Law and Architecture
- Graduate Certificate 1yr "½ Masters":
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- Pre-PhD non-degree, remote, 2yrs :
  - University of South Carolina
- PhD 5yrs :
  - University of California, Los Angeles
  - Geography – Radar Hydrology

2022

NASA Period 2014-present

Internship at NASA Goddard in Maryland

Contractor at NASA Goddard

Visiting Student Researcher at NASA Jet Propulsion Laboratory

GIT

GIT.Connect
Session 2

Intern.NASA.gov

Find Your Place in Space

NASA'S INTERNSHIP PROGRAMS

NASA Office of STEM Engagement

NOTICES AND UPDATES

INTERN

NASA Office of STEM Engagement (OSTEM) paid internships allow high school and college-level students to contribute to agency projects under the guidance of a NASA mentor.

LEARN MORE

PATHWAYS INTERN

The Pathways program offers current students and recent graduates paid internships that are direct pipelines to full-time employment at NASA upon graduation. Launch your career with a Pathways internship.

LEARN MORE

FELLOW

NASA Fellowships allow graduate-level students to pursue research projects in response to the agency's current research priorities.

LEARN MORE

INTERNATIONAL INTERN

University students from participating countries may intern through the agency's International Internships Project. Students work with other interns under the guidance of a NASA mentor.

LEARN MORE

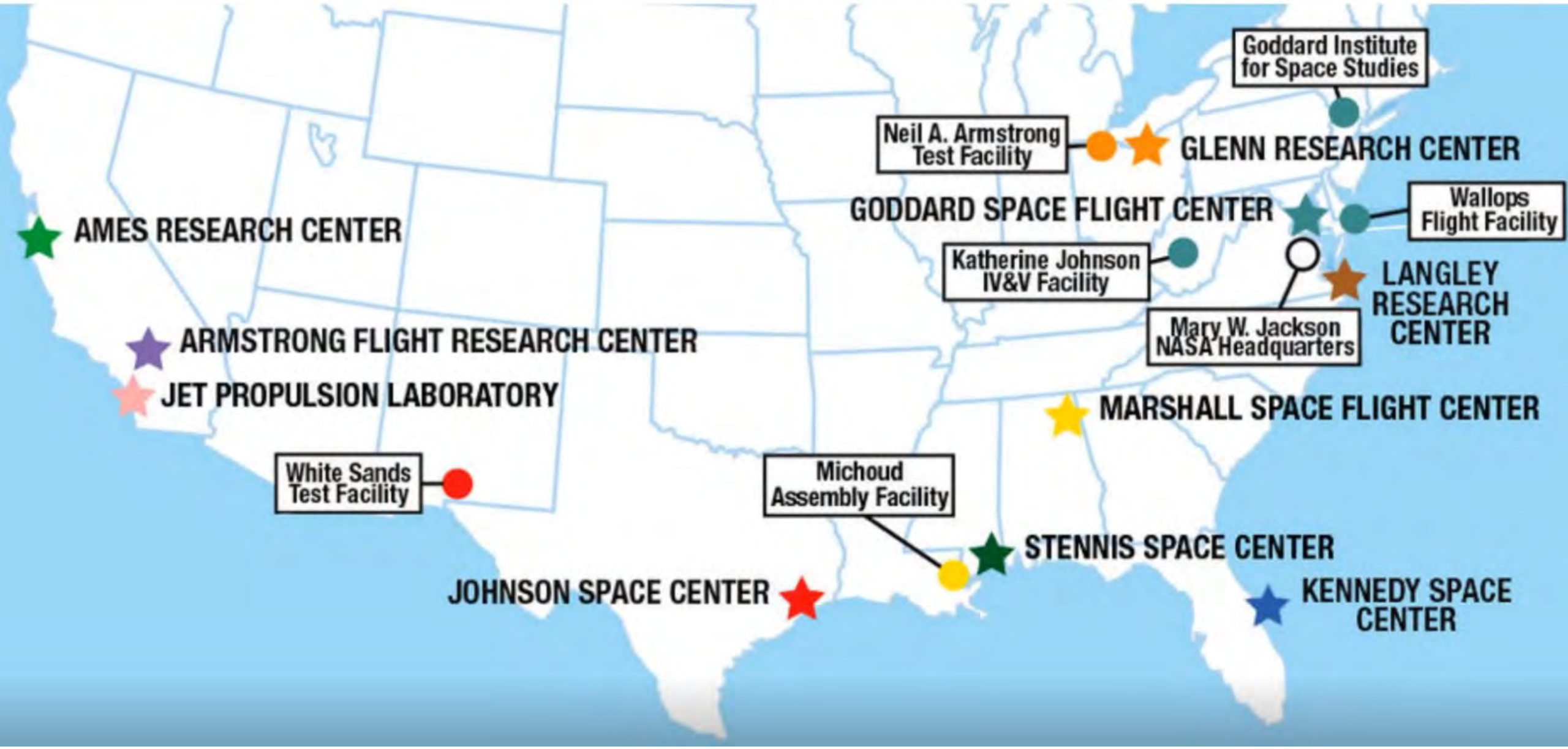
To-Do List For: Future Space Explorers

- ☐ Join a club – or form your own
- ☐ Take something apart
- ☐ Put it back together
- ☐ Code your own video game
- ☐ Ask that burning question
- ☐ Talk to your teacher
- ☐ Do something that challenges you
- ☐ Enter a contest
- ☐ Learn a skill online
- ☐ Teach someone else
- ☐ Test a hypothesis
- ☐ Read about a new discovery
- ☐ Reach out to someone you look up to
- ☐ Explore a career you didn't know existed
- ☐ Attend an info session or career event
- ☐ Write & proofread your resume
- ☐ Apply for an internship
- ☐ Be yourself
- ☐ Dream big
- ☐ Keep at it
- ☐ Visit JPL.NASA.gov/edu to explore more

jpl.NASA.gov

GIT

GIT.Connect
Session 2

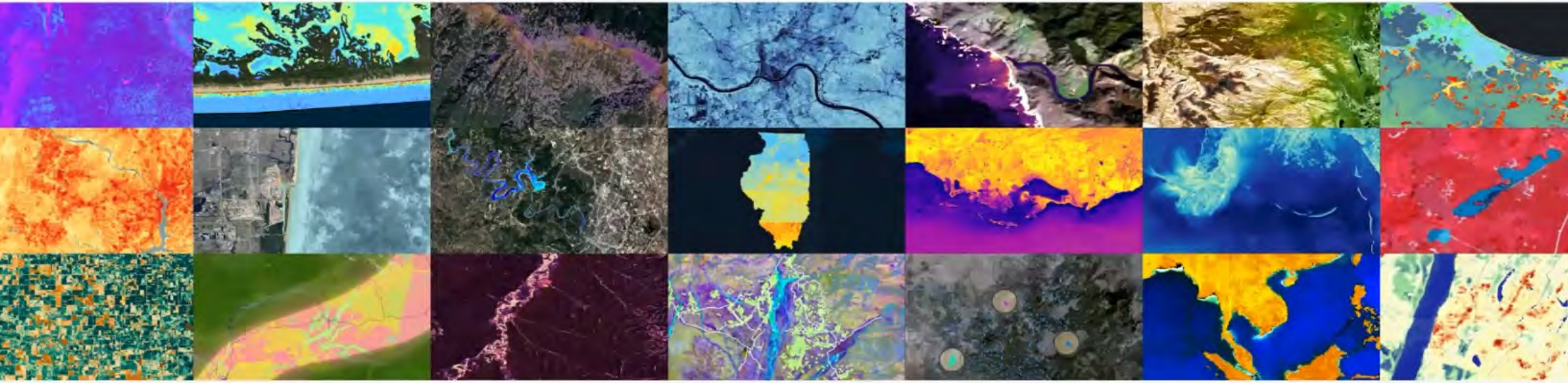


GIT

GIT.Connect
Session 2

develop.larc.NASA.gov

*"As part of NASA's Applied Sciences Program, **DEVELOP addresses environmental and policy concerns through the practical application of NASA Earth observations**. DEVELOP projects apply Earth observations to the application areas of Agriculture, Disasters, Ecological Forecasting, Energy, Health & Air Quality, Transportation & Infrastructure, Urban Development, and Water Resources."*



Application Areas

DISASTERS

ECOLOGICAL FORECASTING

ENERGY

AGRICULTURE

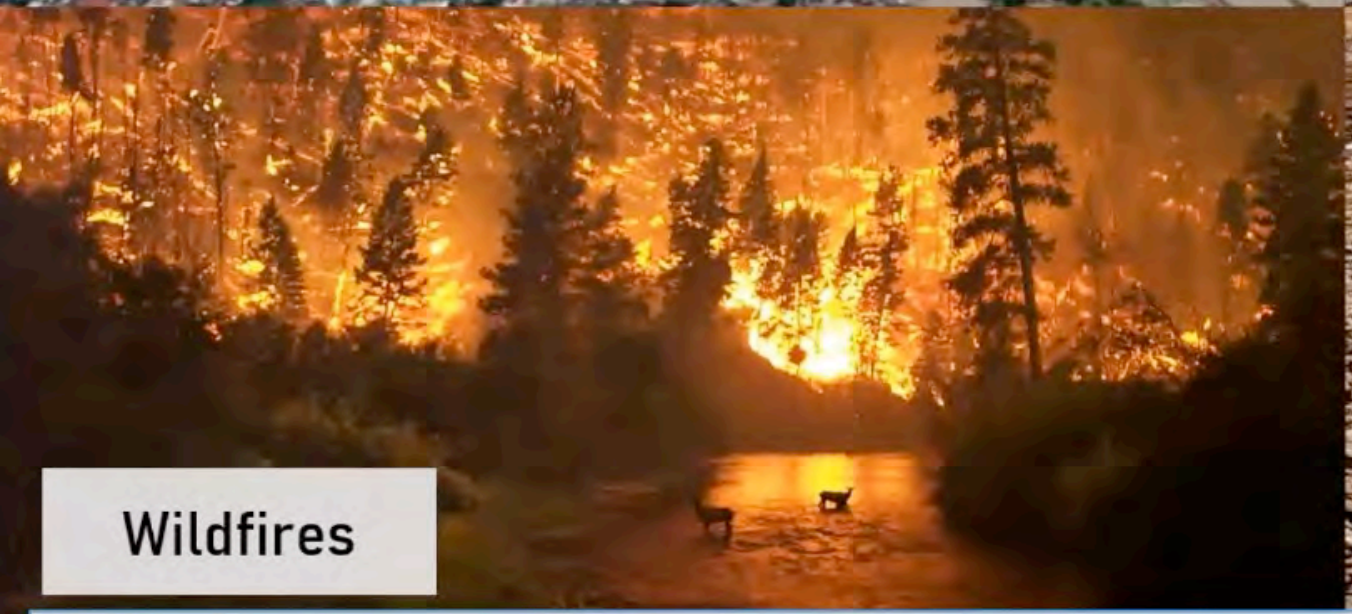
HEALTH & AIR QUALITY

TRANSPORTATION & INFRASTRUCTURE

URBAN DEVELOPMENT

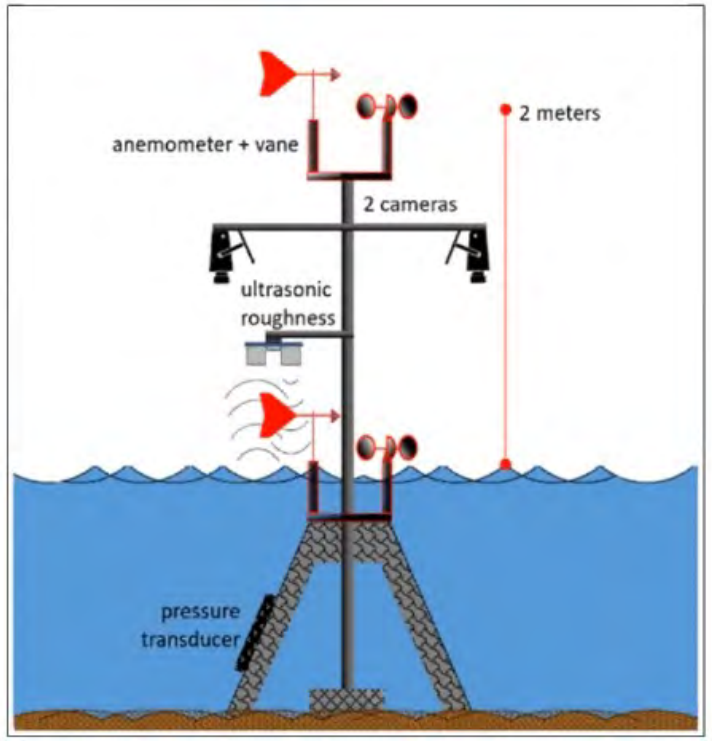
WATER RESOURCES

Moisture Excess



Moisture Scarcity

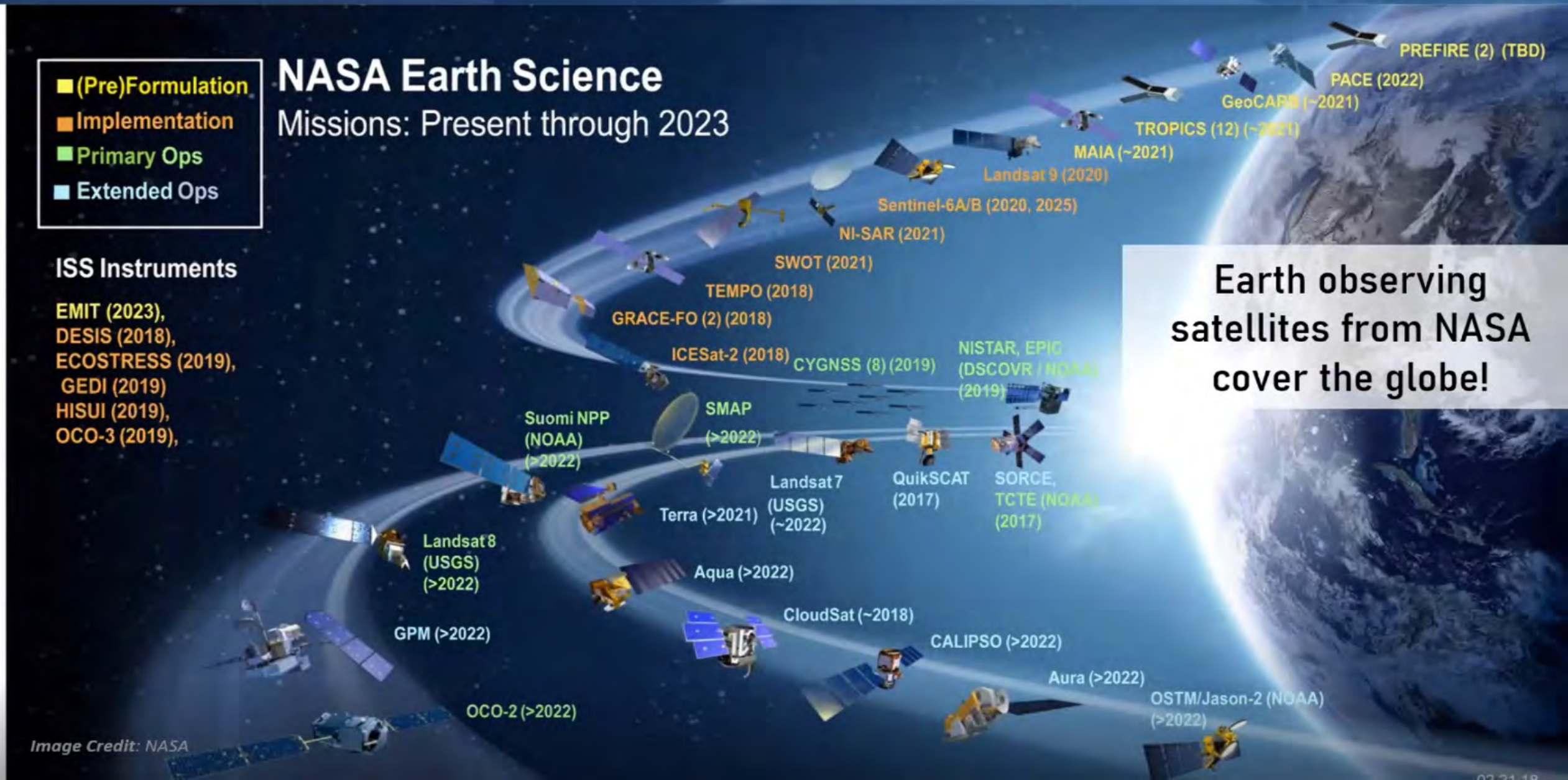
I design instruments and collect data ...



From concept...

To the office

To the field!


(Pre)Formulation
Implementation
Primary Ops
Extended Ops
NASA Earth Science
Missions: Present through 2023
ISS Instruments
EMIT (2023),
DESIS (2018),
ECOSTRESS (2019),
GEDI (2019)
HISUI (2019),
OCO-3 (2019),
PREFIRE (2) (TBD)
PACE (2022)
GeoCARB (~2021)
TROPICS (12) (~2021)
MAIA (~2021)
Landsat 9 (2020)
Sentinel-6A/B (2020, 2025)
NI-SAR (2021)
SWOT (2021)
TEMPO (2018)
GRACE-FO (2) (2018)
ICESat-2 (2018)
CYGNSS (8) (2019)
NISTAR, EPIC
(DSCOVR / NOAA)
(2019)
Suomi NPP
(NOAA)
(>2022)
SMAP
(>2022)
Landsat 7
(USGS)
(~2022)
QuikSCAT
(2017)
SORCE,
TCTE (NOAA)
(2017)
Terra (>2021)
Landsat 8
(USGS)
(>2022)
Aqua (>2022)
CloudSat (~2018)
CALIPSO (>2022)
GPM (>2022)
Aura (>2022)
OSTM/Jason-2 (NOAA)
(>2022)
OCO-2 (>2022)
Earth observing
satellites from NASA
cover the globe!
Image Credit: NASA

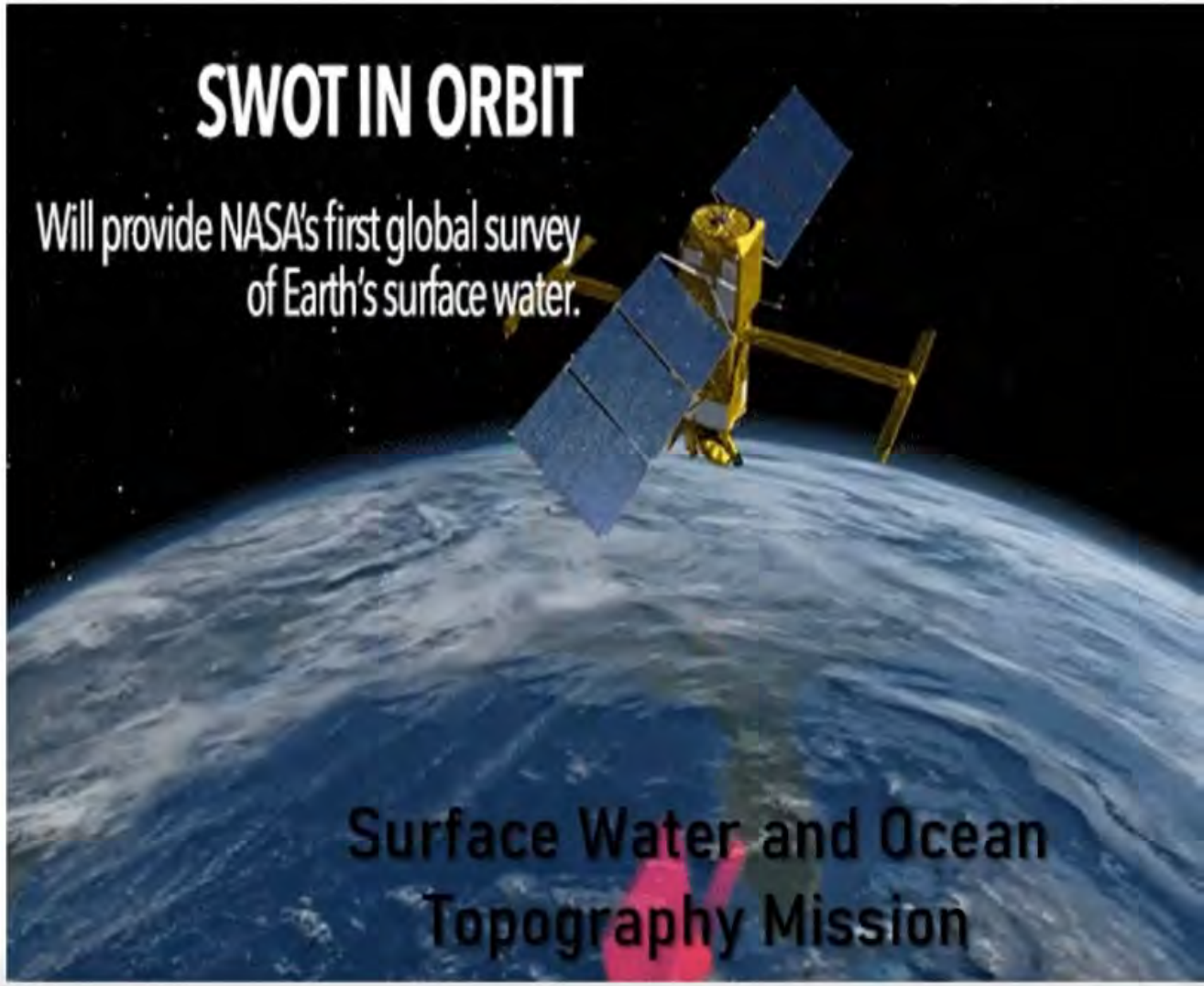
Flooding in Cambodia along the Mekong River

Image Credit: KY Geologist / Flickr, under CC BY 2.0 via Floodlist.com

Landslides in Nepal

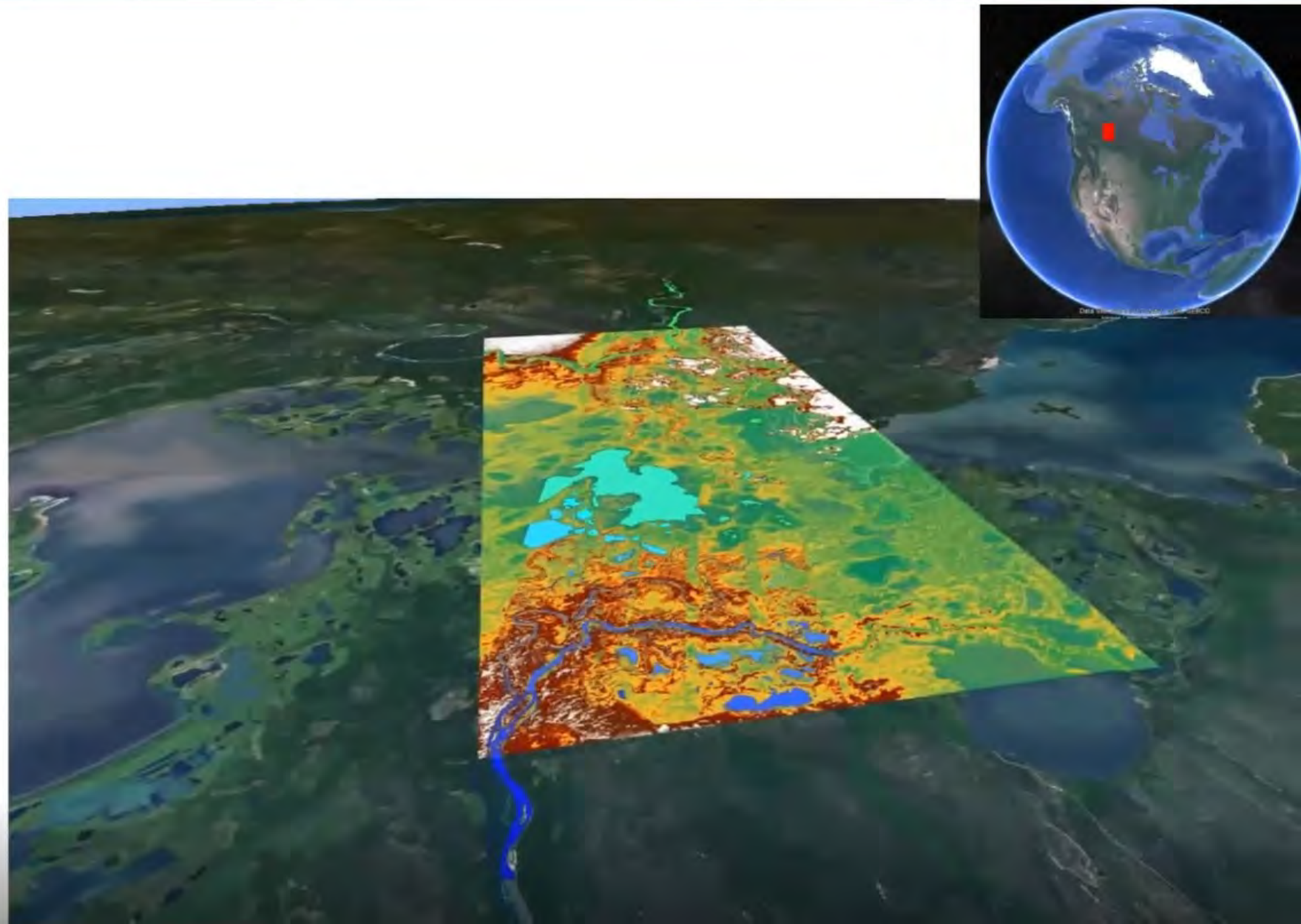
Dissertation and work with NASA-JPL:

Measuring surface water (lakes, rivers, and wetlands) using radar from satellites and airplanes.

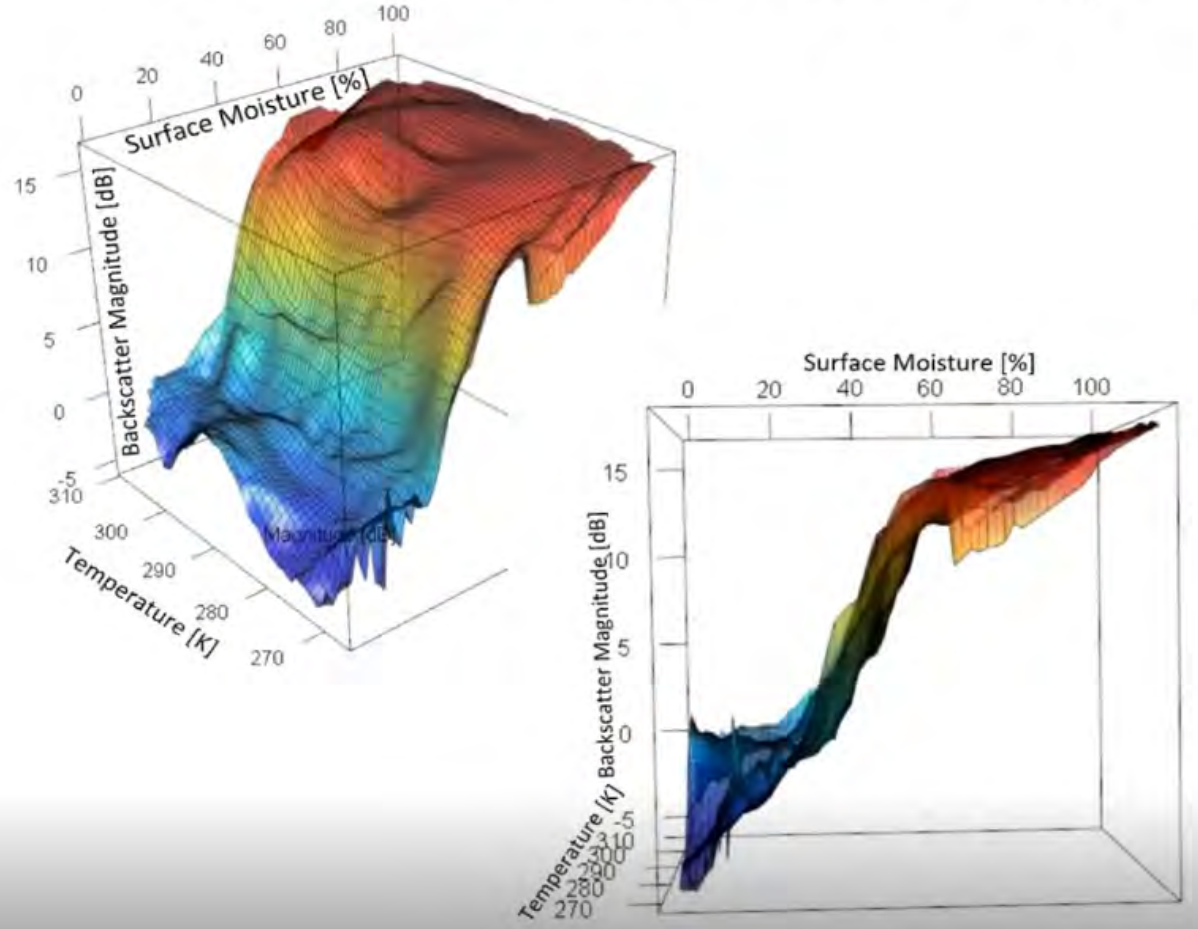


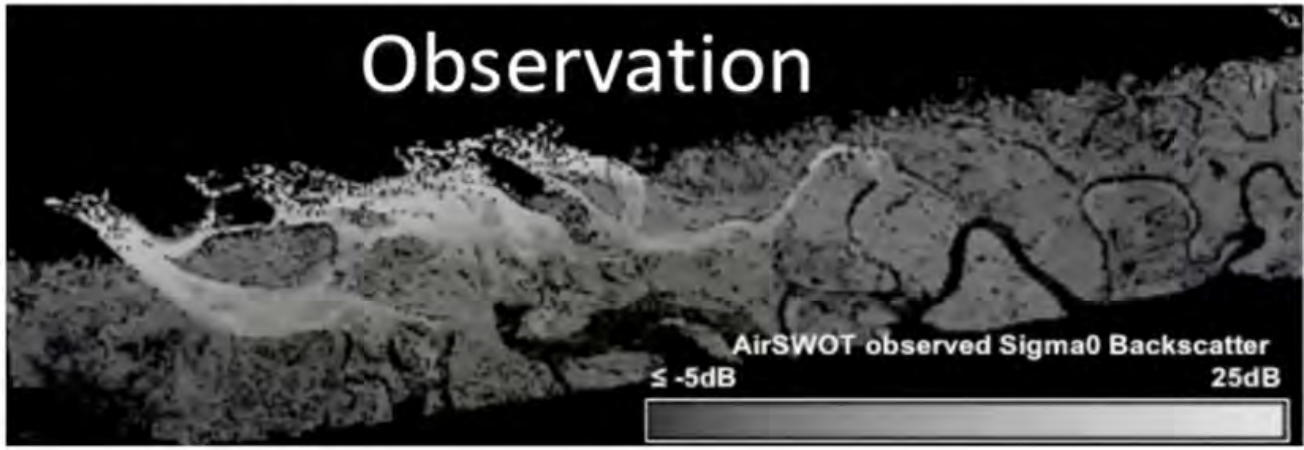
I often get to travel around the world to map changes to water such as changing water levels and wetlands.

This data is from AirSWOT, which is similar to the sensor that will be launched with SWOT.



I'm working to create a simulator for new radar images to estimate what possible issues may arise before the satellite launches.





Saniya LeBlanc Presentation

My Engineering Pathway

- B.S. Mechanical Engineering
- Minor in French

- MPhil in Engineering

- M.S. in Mechanical Engineering
- Ph.D. in Mechanical Engineering
- Minor in Materials Science & Engineering

- Teaching Certification in Secondary Mathematics Education

My Engineering Pathway

- Manufacturing engineer
  - big 3 supplier
  - automotive electronics
- R&D engineer
  - oilfied services provider
  - drilling tools
- High school teacher
  - DC public schools
  - math & physics
- Research scientist
  - energy technology startup
  - waste-heat recovery systems

THE GEORGE WASHINGTON UNIVERSITY
WASHINGTON, DC

LeBlanc Lab

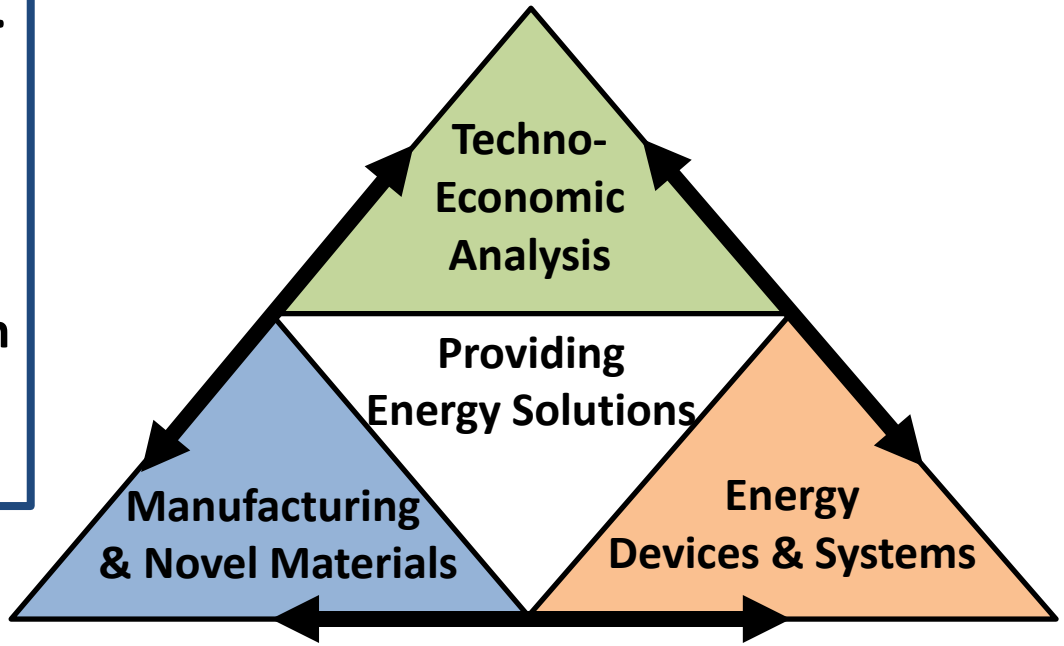
sleblanc@gwu.edu
www.leblanclab.com

We create energy conversion solutions using advanced materials and manufacturing techniques.

SEAS @ GW

seas.gwu.edu

- Over 40% of students are women.
- ~90% of students complete internships or co-ops.
- ~25% of students study abroad.
- 47 countries represented.
- Located in the heart of downtown Washington, DC.



Wrap Up
&
Session Poll

STEM for Her 2022 Certificate Program

Below are the GIT qualifying events for the STEM for Her Certificate

GIT MENTOR PROTÉGÉ PROGRAM EVENTS:

- GIT Mentor Protégé - Exploring the World of STEM Date of Event Attended: 10/14/2021
- GIT Mentor Protégé - Journey through STEM: Twists & Turns and Design Thinking Date of Event Attended: 11/16/2021
- GIT Mentor Protégé - What's in your STEM? Date of Event Attended: 01/13/2022
- GIT Mentor Protégé - Public Speaking with Confidence Date of Event Attended: 02/08/2022
- GIT Mentor Protégé - What has inspired you most in STEM? Date of Event Attended: 03/08/2022

GIT SHARING OUR SUCCESS PROGRAM EVENTS:

- GIT Sharing Our Success - Big Cheers for STEM Careers Date of Event Attended: 11/20/2021

GIT.CONNECT EVNETS

- GIT.Connect - Python Programming using imagiCharms Date of Event Attended: 12/11/2021
- GIT.Connect - "Living & Working in Space" by the National Air & Space Musem and Guest Speakers (NASA, GWU) Date of Event Attended: 03/05/2022

STEM for Her 2022 Certificate Program

Who is eligible? Students in middle school, high school, and college are eligible to receive a STEM for Her certificate.

How do you earn a STEM for Her Certificate? All STEM for Her 2022 sponsored programs (e.g., Girls in Technology, YWCA), as well as, viewing virtual programs on the STEM for Her website are eligible for this certificate. Complete the form for at least 4 sessions during the year by writing a short summary of the event and what you learned (250 - 500 words each):

- Explain why you are interested in pursuing a career in STEM?
- Provide a summary of the event you attended?
- What did you learn from the event you attended?
- How will you apply what you learned to your school or work or thinking about a career in STEM?

Visit www.stemforher.org/certificate-program/ for more information!

STEM for HER
Explore. Pursue. Engage.

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The Stokes Educational Scholarship Program

Who's Eligible: high school students (seniors) **who have demonstrated skills in the critical areas of computer science and electrical engineering** and are planning to major in them.

Program Offers:

- Tuition and mandatory fees up to $30,000 per year
- Year-round salary while attending college
- Housing and travel entitlements during summer employment (if the distance between NSA and the school exceeds 75 miles)
- Paid time off / health & life insurance / federal retirement plan

Minimum Qualifications

- You must be a U.S. Citizen.
- You must be eligible to be granted a security clearance.
- Applicants should have a minimum unweighted GPA of 3.0 on a 4.0 scale.
- You must be a high school senior at the time of application.
- You MUST be majoring in Computer Science, Computer/Electrical Engineering or Chinese or Russian language.
- You must submit your online application during the application period.
- You must achieve a minimum SAT/College Board Score of 1200 (600 Reading and Writing AND 600 Math) or ACT score of 25.* (requirement was modified during the Pandemic)

Additional Information available at the following link: https://federaljobs.net/blog/the-stokes-educational-scholarship-program-nsa/

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SPECIAL THANK YOU

WOMEN IN TECHNOLOGY

RESOURCES, PROMOTION & SUPPORT

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Program Underwriter

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GIT SITES & RESOURCES

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Questions?

Please contact us at

gitconnect@womenintechnology.org