The Science and Engineering Division of the National Federation of the Blind Annual Meeting Minutes for July 10, 2025

To either become a registered member of the Science and Engineering division, or to renew your membership, go to "<https://www.nfb.org/divisiondues>". The dues are $5 a year per person. Please do not make any STEM scholarship donations on this page because the NFB is not yet equipped to separate dues payments from donations on this web page. To donate to the NFB, go to:

"<https://nfb.org/contribute/give>".

A sound recording of this meeting (in mp3 format) can be found at

https://tinyurl.com/NFB-Science-Engineering

In the recordings folder. Due to a technical problem, we failed to record the final talk:

Inclusio: AI-Driven Accessibility Platform for Enhancing Multimodal Visual Content Output Seyoon Choi, contact@inclusiocommunity.com and we apologize to the presenter for this problem. We thank Curtis Chong for audio file editing help.

The file name is "2025-07-10 SEDNFB Annual Division Meeting.MP3".

A copy of the meeting minutes can be found at the same link in the minutes folder.

The file name is

"2025-07-10 Science and Engineering Division of the NFB Annual Meeting Minutes.docx".

This document uses headings so that readers can rapidly find the sections that interest them.

A meeting of the Science and Engineering Division of the National Federation of the blind (SEDNFB) was held at the Marriott New Orleans Hotel, in New Orleans, LA, on Thursday, July 10, 2025.

The meeting was called to order by President John Miller at 7 pm Central Daylight Time (CDT).

## Presentations

Below is a list of titles, and their presenters, of the talks that were given during the 2025 SEDNFB meeting. Titles, Authors, abstracts, and speaker introductions are given after the Adjournment item.

**Action Item:** If the presenters wish to send us written material supporting their talks, these documents will be publicly shared in our meeting files. Please send any documents to Louis Maher (ljmaher03@outlook.com).

Inclusive Innovation: striving for full participation by blind people in technology from concept to release – Jonathan Mosen, jmosen@nfb.org

Middle School And High School Accessible Graphics That Can Be Viewed With A 40-Cell Braille Display, By The Graphiti, And By Graphical Printers – John Miller, Johnmillerphd@hotmail.com

Expanding Access: New Tools from Orbit Research - Venkatesh Chari, v.chari@orbitresearch.com

Getting children involved in STEM and inclusivity through podcasts – Martin Storksdieck, Storksdieck@oregonstate.edu

The Latest Updates For Independence Science's New Graphical Analysis With JAWS – Ashley Neybert, aneybert@independencescience.com

Self-Efficacy of Blind Students Learning Mathematics – Kyle Steinle, kyle.j.Steinle@gmail.com

Inclusio: AI-Driven Accessibility Platform for Enhancing Multimodal Visual Content Output – Seyoon Choi, contact@inclusiocommunity.com

# Several of the science presentations were made, after which President Miller called the business meeting to order at 8:50 PM.

## Minutes

The membership agreed that the minutes from the SEDNFB 2024 business meeting need not be read since the minutes had been distributed by e-mail. The minutes were approved.

## Treasurer's Report

On June 30, 2025, the SEDNFB general fund treasury balance was $1,846.33.

The treasury report was approved.

## Division Pledges

It was proposed that the SEDNFB donate $75 to each of the following three NFB funds:

The Jacobus tenBroek Memorial Fund which supports the NFB center in Baltimore;

The White Cane Fund: which sends money directly to the general treasury of the Federation; and

The Kenneth Jernigan Fund: which is used to bring a number of attendees to their first national convention.

The membership approved these donations.

## Elections

Since 2025 is an odd-numbered year, there were no elections.

## STEM Scholarship

The Science and Engineering Division and the Computer Science Division are raising funds for an annual $8,000 "Science Technology Engineering and Mathematics" (STEM) scholarship given by the NFB, to a worthy student at the NFB convention.

Please consider donating to the NFB towards this scholarship.

To donate:

There are two ways to donate to the NFB STEM Scholarship: one method is online, and the second method is by mail.

If you wish to make an online donation: go to

"<https://www.nfb.org/>" and activate the "Donate" link (or go directly to

"<https://nfb.org/contribute/give>" and fill out the required fields. On the "Contribution Note" field please enter "STEM Scholarship". Once your donation has been submitted, you will receive an automatic acknowledgment of your donation. Please forward this donation acknowledgement to John Miller (Johnmillerphd@hotmail.com) so that he can track our progress towards our funding goal.

To donate by mail: Please make a check payable to NFB.

On the memo line write STEM Scholarship.

Mail the check to

NFB accounting/scholarship

200 East Wells St. At Jernigan Place

Baltimore, MD 21230.

Please inform John Miller (Johnmillerphd@hotmail.com) about this donation so that he can track our progress towards our funding goal.

Please make your contributions by March 1, 2026, so that your contributions can count towards the 2026 STEM Scholarship.

## Joining the Science and Engineering Division E-mail List

If you wish to join the SEDNFB e-mail list, go to "nfbnet.org", open the list of NFB e-mail groups, and search for "NFB Science".

The business meeting was adjourned and the remaining presentations were given.

## Adjournment

The division meeting adjourned at 9:55 PM.

Respectfully submitted,

Louis Maher, Secretary

Science and Engineering Division of the National Federation of the Blind

Phone: 713-444-7838

E-mail ljmaher03@outlook.com

For any questions, please contact John Miller at johnmillerphd@hotmail.com.

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# Titles, Authors, Abstracts, and Speaker Introductions

What follows is a copy of the material that appeared in the meeting agenda.

## Title: Inclusive Innovation: striving for full participation by blind people in technology from concept to release

Author: Jonathan Mosen, jmosen@nfb.org

Abstract: The National Federation of the Blind’s Executive Director of Accessibility Excellence, Jonathan Mosen, will outline some of the principles employed by our Center of Excellence in Non-visual accessibility (CENA) when advocating for a more accessible world. He will discuss the challenges and opportunities in the current environment.

Speaker Introduction: Jonathan Mosen is the Executive Director for Accessibility Excellence at the National Federation of the Blind. He is based at the Jernigan Institute in Baltimore, MD. Throughout his career, he has been a thought leader, broadcaster, podcaster, advocate, change agent, government relations professional, author, CEO, consumer organization leader, information technology consultant, Internet start-up founder, candidate for Parliament, IT product designer, and non-profit Chair.

Jonathan Mosen

Executive Director for Accessibility Excellence

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410-659-9314, extension 2233

Email: jmosen@nfb.org

## Title: Middle School And High School Accessible Graphics That Can Be Viewed With A 40-Cell Braille Display, By The Graphiti, And By Graphical Printers

Author: John Miller, Johnmillerphd@hotmail.com

Abstract: The tactile graphic program is a MATLAB script used for data visualization. It generates PDF, PNG, and ASCII text output for exploring graphics. The ASCII text output contains data describing the graph, such as the minimum and maximum x and y values on the graph. It also contains a section of the text file with dot patterns that can be reviewed with a refreshable braille display. The dot patterns form the shape of the tactile graph. The MATLAB script may be run in Octave, which is a free Windows application.

Speaker Introduction: John Miller is the President of the Science and Engineering division of the National Federation of the Blind. John has a PhD in Electrical and Computer engineering from UC San Diego, California. John has an active interest in data visualization and supporting the learning of middle school and high school math. John is raising a middle school aged child and reviews current common core assignments.

John has authored a number of papers in engineering.

1. High Code Rate, LDPC Codes with Guaranteed Minimum Distance and Stopping Weight

2. High Code Rate Error Correction Code Design for Partial Response Systems

3. An Application of Backprojection for Video SAR Image Formation Exploiting a Subaperture Circular Shift Register

4. Applying Stereo SAR to Remove Height-Dependent Layover Effects From Video SAR Imagery

5. Impact of Ground Mover Motion and Windowing on Stationary and Moving Shadows in Synthetic Aperture Radar Imagery

6. Applying the Hough transform for detecting ground movers in synthetic aperture radar imagery

7. Map-drift Autofocus and Scene Stabilization for Video-SAR

8. Fast backprojection for video-SAR

## Title: Expanding Access: New Tools from Orbit Research

Author: Venkatesh Chari, v.chari@orbitresearch.com

Abstract: This year, Orbit Research presents two groundbreaking products. The Orbit Player is a compact, affordable DAISY and media player. It features tactile controls, multilingual text-to-speech, internet radio, podcast support, and compatibility with all major book formats. We will also demonstrate the new low-vision model of the Orion TI-84 Plus Talking Graphing Calculator, which adds a high-contrast visual display to the fully speech-enabled platform trusted by blind students in STEM for over a decade. Additionally, we’ll share some exciting new use cases for the Graphiti interactive tactile graphic display. Attendees will have an opportunity to try out all the devices during the session.

Speaker Introduction: With a background in Electrical Engineering, Venkatesh Chari has worked for over 25 years in the development of technologies involved in mobile and assistive technology products, in roles spanning engineering, management and strategic marketing.  At Orbit Research, his work has included the development of the Orbit Reader 20, the world’s first affordable refreshable braille display and the Graphiti Interactive Tactile Graphic Display.

Email: v.chari@orbitresearch.com

## Title: Getting children involved in STEM and inclusivity through podcasts

Author: Martin Storksdieck, Storksdieck@oregonstate.edu

Abstract: Tumble Science Podcast project for children ages 7-12 lets children and teachers follow either a listening or creation track that expands kid’s minds of who can be a scientist by letting them hear podcasts about blind scientists as well as create their own podcasts to share their own scientific discoveries. Accessible lesson plans for teachers were also created in this project to encourage accessible STEM learning for all students to give teachers ideas for how to make more inclusive classrooms using cross-cutting concepts from a variety of disciplines. This work was supported by NSF Grant number 2148711.

Speaker Introduction: Martin Storksdieck is professor at Oregon State University and director of the university-wide STEM Research Center. The center is dedicated to applied research on STEM teaching and learning in school and university settings, as well as out-of-school education and science communication, with a focus on equity and social justice. Prior to OSU, Martin directed the Board on Science Education and the Roundtable on Climate Change Education at the US National Academy of Sciences. He has more than 25 years of experience with research and evaluation in STEM-related fields and in environmental and sustainability education. He holds master's degrees in biology and public policy, and a Ph.D. in education.

Email: Storksdieck@oregonstate.edu

## Title: The Latest Updates For Independence Science's New Graphical Analysis With JAWS

Author: Ashley Neybert, aneybert@independencescience.com

Abstract: The new Graphical Analysis with JAWS pairs the ability to use new Go Direct wireless sensors to allow users to work with higher accuracy sensors without the worry about getting chords caught in scientific instrumentation. This allows you to have more control of voice settings than traditional Talking LabQuest, while allowing for braille support, and in-depth description of data charts. An exciting new tool for the blind in claiming more scientific equity.

Speaker Introduction: Ashley Neybert is a doctoral candidate in STEM Education at Oregon State University and works for Independence Science a company that specializes in STEM access for the blind. She asks if you haven't already done so to please meet with Martin and her after the talk or stop by their table in the exhibit hall to help with her PhD dissertation project of recording experiences of the blind in STEM.

Email: aneybert@independencescience.com

## Title: Mathematics Learning and the Self-Efficacy of Blind Students in Postsecondary Education

Author: Kyle Steinle, kyle.j.Steinle@gmail.com

Abstract: This presentation explores the role of self-efficacy in how blind students learn mathematics in postsecondary education. Drawing from research and lived experience, the talk examines how belief in one’s ability to succeed — known as self-efficacy — influences persistence in learning mathematics. The talk highlights common barriers blind students face and offers strategies to support their mathematical growth. Self-efficacy — a person’s belief in their ability to succeed at a given task — is central to this discussion. The presentation also shares insights from Steinle’s dissertation research on mathematics faculty who have taught blind students.

Speaker Introduction: Kyle Steinle is a doctoral candidate in Curriculum and Instruction at Texas Tech University, where he also earned a bachelor’s and master’s degree in mathematics. He has taught undergraduate mathematics as a teaching assistant and currently works as a research assistant supporting mathematics teacher preparation. His research explores the self-efficacy of mathematics faculty members who have taught blind students in higher education.

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## Title: Inclusio: AI-Driven Accessibility Platform for Enhancing Multimodal Visual Content Output

Author: Seyoon Choi, contact@inclusiocommunity.com

Abstract: Inclusio is developing an end-to-end solution for accessible content, particularly graphics found in STEM disciplines, powered by Artificial Intelligence and featuring multiple output platforms. This presentation highlights advancements in how Inclusio makes content work across three platforms: embossed tactile graphics, multimodal touchscreen displays, and audio/tactile output on IVEO. We’ll showcase how our software interprets digital graphics (like image files) and enables access on multiple platforms so that there is choice in the way content can be experienced. Additionally, we’ll demonstrate how Inclusio’s AI-driven automation platform simplifies the creation of accessible graphics, converting inaccessible content into inclusive formats. Inclusio’s strong partnerships and lived experience are driving the design of this new technology, and we will share ways for the NFB community to become involved and contribute to its evolution.

Speaker Introduction: Seyoon Choi, MSW, serves as a Product Design and Evaluation Specialist Consultant for Inclusio, a Phase II project awarded to Saint Louis University and other research and industry partners and funded by the U.S. National Science Foundation’s Convergence Accelerator Program. Seyoon recently earned his Master of Social Work (MSW) from Saint Louis University in the spring of 2024, focusing on community advocacy and leadership. He was inspired to continue working in this field through his time serving as the president of the Missouri Association of Blind Students, a division of the NFB of Missouri, and as co-chair of the Outreach Committee and podcast producer for the National Association of Blind Students. In 2021, he was selected for the Missouri Governor’s Council on Disability Youth Leadership Award and has also served as a Blind Community Enrichment Associate for Lighthouse for the Blind - St. Louis’ Arts and Entertainment Accessibility program, assisting local museums and venues in making their attractions accessible and engaging for patrons who may be blind or have low vision. He was also recently elected the second Vice President of the National Federation of the Blind of Missouri and serves as the Chair of the affiliate’s Technology Committee. With a strong passion for technology, human-computer interaction, and accessibility within the blind and low vision community, Seyoon is particularly focused on enhancing multimodal output of visual content to make it more inclusive—an area that aligns closely with the mission of Inclusio.

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