The Science and Engineering Division Science Talk Zoom Conference Minutes for August 24, 2020

The Science and Engineering Division of the National Federation of the Blind (SEDNFB) presented three science talks on Monday, August 24, 2020.

The meeting was called to order by John Miller, president of the SEDNFB, at 9:01 PM Eastern Daylight Time (EDT).

President Miller thanked the speakers for presenting at this event. He then welcomed the attendees to the meeting. He said that we had raised $2,000 towards the $3,000 Science Technology Engineering and Math (STEM) scholarship, presented by the NFB, at the annual NFB convention. The SEDNFB and the Computer Science Division of the NFB are jointly raising money for this scholarship. Scholarship contribution instructions are under the Scholarship heading.

President Miller also invited the listeners to join the SEDNFB and subscribe to the SEDNFB e-mail list at "Nfbnet.org".

# Presentations

A summary of the presentations follows.

**Title: Using Data Analytics to Understand Fire-Atmosphere Interactions**

Speaker: Kaden Colton (kaden.e.colton@gmail.com)

Kaden used data from three major sources: Meso West (at the University of Utah), The University of Wyoming Archives, and the National Fire Incidents Reporting. He used this data to determine the atmospheric conditions present during fires. He looks at temperature, dew point, humidity, wind speed, and wind direction. He generates summary daily statistics for these quantities. He looks for the highs, lows, and standard deviations for these parameters.

He is interested in how weather effects fires, and how fires effect weather.

Kaden can use the Mac, and a Braille display, to use the MATLAB debugger in single-step mode.

**Title: How Does Computer Science Meet Physical Science**

Speaker: David Hertweck (david.hertweck@sbcglobal.net)

David has a Master of Science degree in computer science. He now works for Bausch & Lomb.

David's team builds Ophthalmic surgical equipment. His equipment us used in cataract surgery in the front of the eye, and retinal diseases in the back of the eye. His equipment is also used in glaucoma surgery. He has worked in this field for around twenty years. His current team has over seventy-five engineers.

He works with embedded software which controls equipment in near real-time. His software controls real things.

He studies fluidics and ultrasonic devices. His equipment is used to control the fluid moving into the eye and out of the eye during surgery. This fluid flow keeps the eye from collapsing during surgery.

In cataract surgery, a needle is used to remove the damaged cornea. This needle is vibrating around 28 kilo hertz.

He uses NVDA for a screen reader, and an electronic magnifier to sign documents. He is an enthusiastic user of the iPhone because of the wide-ranging help it can be to the disabled. Through NVDA, David is proficient using Microsoft teams at work. During his career, he has generally found that laboratory equipment is not accessible. The magnification provided by the iPhone can help David handle some of these problems.

**Title: Succeeding as A Blind Student in Graduate School in The Life Sciences**

Speaker: Kennedy Stomberg (stomberg8@gmail.com)

Kennedy was born blind. She majored in neuroscience biology and psychology.

She is completing a masters degree in cognitive neuroscience.

Originally she used a sighted assistant for descriptions and lab work. She is currently using sighted help less often than originally.

She uses JAWS and a Hims Braille Edge display, as well as an iPhone. For blind students, Kennedy’s university generated raised line diagrams including Braille legends using a Braille embosser.

She also uses low-tech methods such as a paper and pen which can be used to draw a touchable graph if the user presses down hard on the paper.

She uses the R. statistical software package, and MATLAB.

# Miscellaneous

Newton Nguyen (newt.n94@gmail.com) is interested in starting a science mentoring program.

# Scholarship

The Science and Engineering Division and the Computer Science Division are raising funds for a $3000 or $5000 "Science Technology Engineering and Mathematics" (STEM) scholarship given by the NFB, to a worthy student at the NFB convention. In 2020, we were able to raise $3,000 for this scholarship.

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://www.nfb.org/donate>". 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 make your contributions by March 1, 2021 so that your contributions can count towards the 2021 STEM Scholarship.

**NOTE: Please do not use the NFB division membership form for STEM scholarship donations.**

As of August 25, 2020, the scholarship fund had a balance of approximately $2000.00 towards the 2021 STEM scholarship.

# Adjournment

The meeting ended at 10:05 PM EDT.

# Questions and Corrections

If there are any questions concerning the Science and Engineering Division, please contact John Miller (Phone: 858-774-9286, Johnmillerphd@hotmail.com).

If there are any corrections for the minutes, please contact Louis Maher (713-444-7838, ljmaher03@outlook.com).

Minutes submitted by Louis Maher