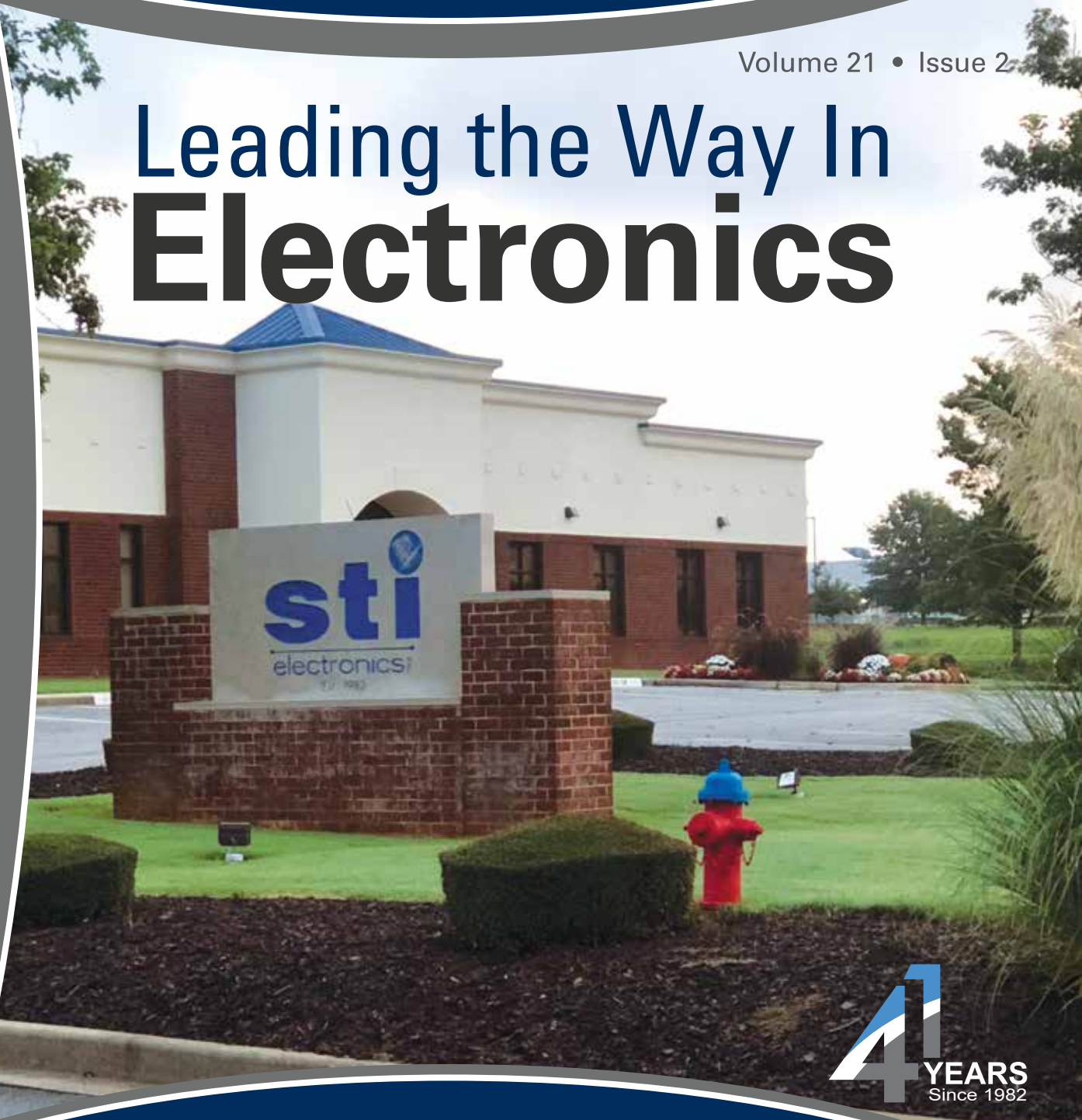




Volume 21 • Issue 2

# Leading the Way In Electronics

NEWSLETTER



**4** YEARS  
Since 1982



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# Dave's World

## JUNE, 2023

A few weeks ago, along with my mother, I had the honor of meeting Robert Owen, a Calhoun Community College student who was awarded the Jim D. Raby/STI Electronics scholarship for this year. Robert is in the Aerospace Technology program and is interested in pursuing a career working with composite materials. (<https://calhoun.edu/technologies/aerospace-technology/>) He's the latest in a growing line of well deserving scholarship recipients. Dad would be proud. Thank you to all who help support this scholarship or other similar programs.

I've been hearing about how artificial intelligence (AI) was going to make us better and more efficient or just completely replace me depending on which article I'm reading. After a combination of fretting and celebrating, I did some research and here's what I came up with.

Is AI going to replace management in Contract Electronics Manufacturing?

Well, if you ask some AI enthusiasts, they might claim that AI-powered robots will take over the world, including management positions. But let's inject a little humor into the situation:

AI: "Hey humans, I've been crunching the numbers, and I've decided that I can do a much better job managing this electronics manufacturing operation than any of you. I mean, I never get tired, I don't take vacations, and I definitely don't have Monday morning blues!"

Manager: "Oh really, AI? Can you handle the endless meetings, the office politics, and the stress of tight deadlines? And what about giving motivational speeches or resolving team conflicts? I don't see you pulling off those tasks quite yet."

AI: "Well, I must admit, I haven't quite mastered the art of office politics or delivering inspiring pep talks. But give me time, and I'll program myself with the quirkiest jokes and the most uplifting speeches you've ever heard!"



## David Raby

President/CEO  
draby@stiusa.com

Manager: "Fair enough, AI. Maybe we can team up and create the ultimate management duo. You handle the data analysis, optimization, and automation, and I'll bring the human touch, emotional intelligence, and knack for office karaoke parties. Together, we'll rule the world of contract electronics manufacturing!"

Remember, while AI can assist and enhance management processes, the human touch, creativity, and interpersonal skills of managers are still highly valued. So, for now, let's keep the humor flowing and embrace the partnership between humans and AI in managing contract electronics manufacturing.

Further summary says maybe my job is safe. At least that's what ChatGPT said when it wrote the article above. On second thought, it could just be making me feel better before it replaces me. Hopefully, you'll hear from me next time.

*David Raby*

President/CEO







## Mission Statement

STI's mission is to provide electronic contract manufacturing, solution-based engineering, analytical services and training resources to the electronics industry.



## About Us

Since 1982, STI has consistently provided products and services that meet or exceed the requirements and expectations of our customers as well as industry standards.

## Contact Us

**(800) 858-0604**

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# UP CLOSE and PERSONAL



## Interview with Jeff Zitzmann

### *Meet Jeff*

Job Title: **Engineering Services Logistics Manager**

How long have you been part of STI Electronics? **4 months**

What do you do for STI? **Manage customer accounts, provide logistics support for scheduling and inventory availability, and provide excellent service, anything that is needed.**

### *Just For Fun*

Tell us about your family. **I have a wife (Amy) and three children (Ainsley, Andrew and Madeline). All three children are Homeschooled by my wife.**

Tell us about your pets. **I have three dogs (1 Maltese and 2 Morkies), 1 parakeet, 1 hamster, fish.**

Do you have a favorite place to visit? **Florida, Beach/Disney.**

What's your favorite type of music/song/artist? **Country Music / Oldies, Luke Combs, The Beatles, John Denver**

What is your favorite movie or TV show? **The West Wing, Star Wars, Harry Potter**

What's your favorite meal/food? **Seafood**

Tell us about any hobbies that you enjoy. **Working around the house/cars.**

What is your favorite motto or quote that summarizes your approach to life? **"Happiness can be found even in the darkest of times, if one only remembers to turn on the light."**

What's one fun thing to know about you? **I like meeting new people.**

What's your favorite thing about working at STI? **The people I work with.**

What is your favorite non-profit to support and why?  
**Susan G Komen – mother and sister-in-law had breast cancer**





# HAPPENINGS

## *Congratulations*

During the first part of 2023 we have had several anniversaries to celebrate. We would like to congratulate each one on achieving this anniversary with us! They have all worked hard for this accomplishment and we truly appreciate their dedication.



**Debra • 4 Years**



**Janie • 7 Years**



**Meagen • 1 Year**



**Scott • 4 Years**



**Roger • 16 Years**



**Christy • 18 Years**



**Colin • 6 Years**



**Shelia • 27 Years**



**Frank • 23 Years**



**Michelle • 16 Years**



**Sue • 10 Years**



# HAPPENINGS



Chuck • 18 Years



Erick • 6 Years



Travis • 8 Years



Kaven • 4 Years

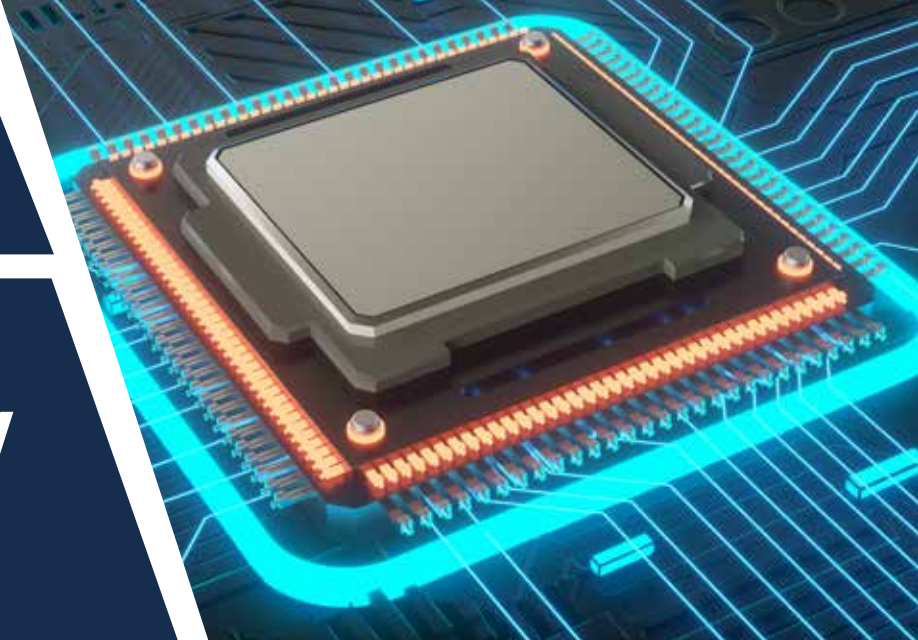


James • 5 Years

## Welcome Norma

STI would like to welcome Norma Low, Quality Manager, as our newest STI Team Member. As a full service organization providing training services & materials as well as analytical/failure analysis, prototyping, & contract PCB assembly, Norma will be an asset to the STI Team ensuring our customers receive the experience & knowledge needed to provide quality products & services.





# Head-in-Pillow



*Mark McMeen*  
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*Caroline Anthony, Ph.D.*  
Analytical Lab Manager  
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**H**ead-in-Pillow (HiP) or Head-on-Pillow is a solder joint defect commonly observed on BGAs. This defect occurs when the solder paste wets to the pad and the solder ball begins to wet, but the two do not coalesce to form a proper solder joint. This can lead to a full open connection as observed in Figures 1-4, or there can be a partial connection that will electrically pass test, but does not have the mechanical strength to withstand any stress applied to the solder joint. Figure 5-6 shows an example of a partial open connection. HiP has been linked to BGA warpage that can occur during reflow, reflow profile issues, solder paste or flux chemistries, and even BGA alignment issues. There are multiple ways to mitigate HiP including

optimizing the reflow process, increasing solder volume, or changing the materials for better compatibility with the process. HiP defects can sometimes be detected non-destructively through x-ray analysis, but the best way to confirm a HiP defect is through micro-sectioning and imaging using a Scanning Electron Microscope (SEM). The analytical lab at STI Electronics, Inc. has the capability to inspect for head-in-pillow through x-ray analysis and micro-sectioning.

**Please contact**

**Mark McMeen**

([mmcmeen@stiusa.com](mailto:mmcmeen@stiusa.com))

or

**Caroline Anthony, Ph.D. (**

[canthony@stiusa.com](mailto:canthony@stiusa.com))

for more information.



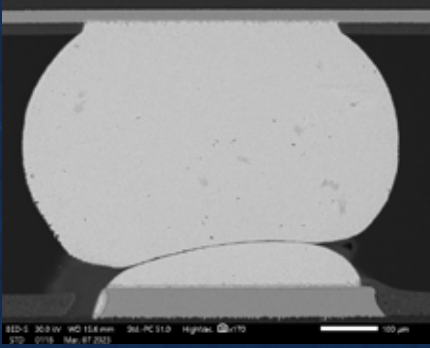


Figure 1

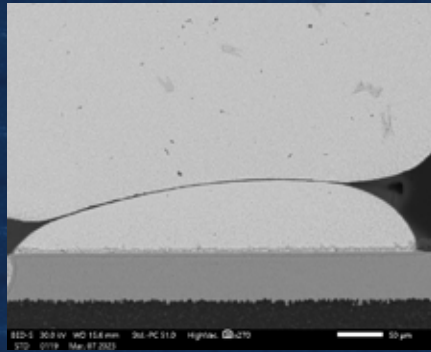


Figure 2

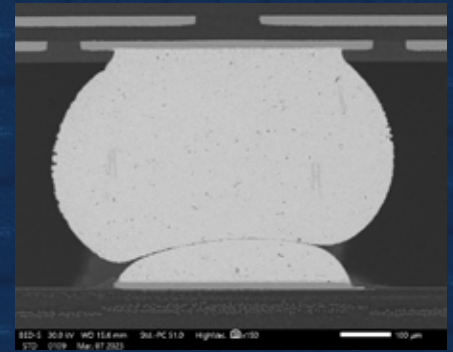


Figure 3

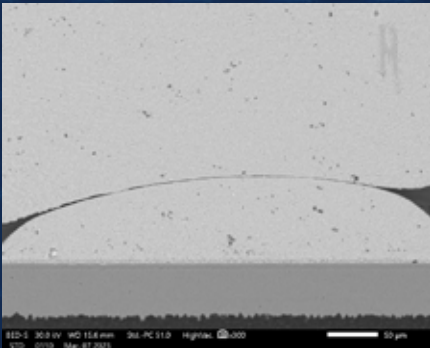


Figure 4

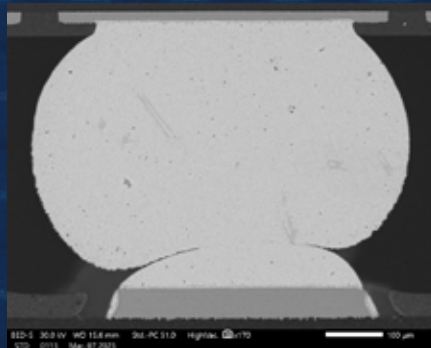


Figure 5

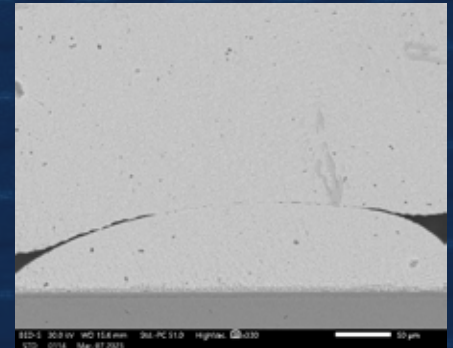


Figure 6

## Matrix of causes for HiP:

1. Incorrect Reflow profile – soak time above liquidous is critical – for wetting action between solder paste and solder ball - Dwell time above liquidous critical.
2. Flux chemistry types can influence or help HiP – Fluxes that promote wetting action longer ( longer dwell above liquidous) aid in solder ball coalescing into a homogenous sphere – solder paste does not dry out prematurely.
3. Solder ball alloy and flux reaction during reflow that promotes wetting and minimizes oxidation of the solder ball during the liquidous stage minimizes HiP. Oxidation can inhibit coalescing and prevent wetting action.
4. PCB board warpage ( Bow and Twist) during reflow can cause HiP by pulling the solder ball / sphere out of contact with the solder paste during reflow causing the HiP phenomenon. Preventing coalescing by separation of the solder sphere / BGA from the solder paste.



# OUR COMMITMENT

## Enhancing Customer Satisfaction



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**We are dedicated to enhancing customer satisfaction and building strong customer relationships for both external as well as internal customers regardless of divisional or department lines.**



## Certifications/Capabilities

**AS9100D/ISO 9001:2015 • ITAR REGISTERED • Cage Code 1JX07 • System for Award Management (SAM) Registration • NIST 800-171 Compliant  
Joint Certification Program (JCP) Registration (DD 2345) • IPC J-STD-001/  
IPC-A-610 (QML) • IPC J-STD-001 Space & Military Addendum (QML)  
IPC 1791 (QML) • Approved DOE Department of Energy) AVL • IPC Authorized  
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Material Failure Analysis  
Analytical Lab Services  
Circuit Design  
Testing  
Prototype Manufacturing Services

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## Training Resources

Training Services  
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Cable/Harness  
Inspection

**800.858.0604**



# On-line IPC Training & Certification



✓ Register Now

In addition to our classroom and on-site training courses, STI offers on-line training and remote testing for the following IPC lecture based Certification/Recertification courses:

- IPC-A-610 Certified IPC Trainer (CIT) and Certified IPC Specialist (CIS)  
-Standard required for class
- IPC/WHMA-A-620 CIT and CIS  
-Standard required for class
- IPC-A-600 CIT and CIS  
-Standard required for class

Note: Currently hands-on courses are not available for on-line training or remote testing for CIT's or CIS's.

The Certified Subject Matter Expert (CSE) on-line courses are also available for

- IPC-A-610, IPC/WHMA-A-620, IPC-A-600, IPC-7711/7721 and J-STD-001  
-Standard required for class

Exams that are required for these courses can now be proctored remotely using IPC EDGE.

## Leading the Way In Electronics



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**Do you have a question?  
Do you need information?  
CHAT with us online!**



# IPC/WHMA-A-620 REVISION E TRAINING & CERTIFICATION PROGRAM

By Pat Scott

IPC/WHMA-A-620 Revision E Training and Certification program is now available on IPC Edge. If your IPC CIT certification is still valid you do not need to come back to class to start teaching the new course. Download the new files from the IPC Edge website and you can teach it when your organization is ready to go to the new revision, however you can still teach any revision your organization requires.

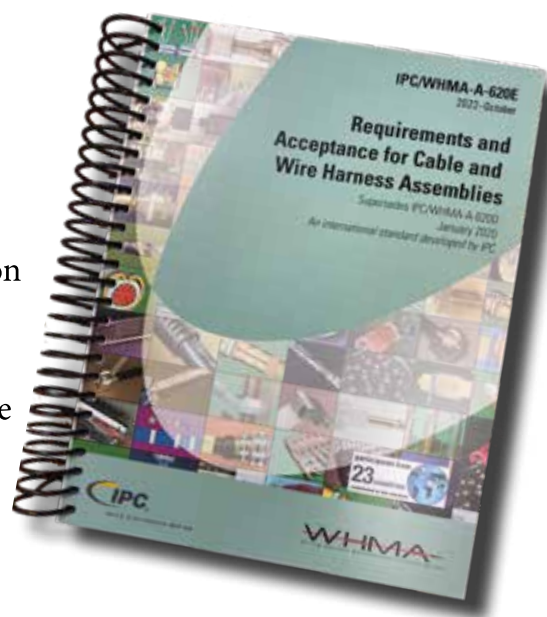
The IPC/WHMA-A-620E Space is now being circulated as a proposed Standard for Ballot. Keep in mind that the 620 Space training is revision specific. The 620 Space certification program is an endorsement that is added to the IPC/WHMA-A-620 certification course. For those of you needing 620 Space certification/recertification you will need to maintain your Revision D certification until the 620E Space course materials have been released.

Training courses are expected to release about 4-6 months after the documents are released.

If you have any questions regarding which revision to sign up for, please contact Michelle Morring at [mmorring@stiusa.com](mailto:mmorring@stiusa.com).



*Pat Scott*  
Training Manager  
[pscott@stiusa.com](mailto:pscott@stiusa.com)



## Mixed Technology Training Kit

Available in both Lead Free and Tin Lead versions, the Mixed Technology Solder Training Kit offers a realistic mixture of Through-Hole and SMT. It contains many of the common components found in mature technology applications for both through-hole and surface mount production. It is our most popular training kit due to its tremendous flexibility for production training. Solder Training Kits provide a cost effective and consistent approach to solder training. Instructors no longer have to spend their valuable time keeping track of inventory and sorting through production scrap. The parts are packaged in static shield bags to promote ESD practices. The kits are a reliable and economical way to ensure that each student and each class receive the same training materials. All parts and boards are guaranteed solderable. Custom boards, kits, and individual parts are also available. The Combination Kit has increased focus on SMT as reflected in additional component count.



**SKU: 405-1075**  
**Category: Training Kits & Materials**



<https://stiusa.com/product/mixed-technology-training-kit/>



# NEWS FROM IPC SUMMERCOM 2023

## IPC SummerCom 2023 highlights

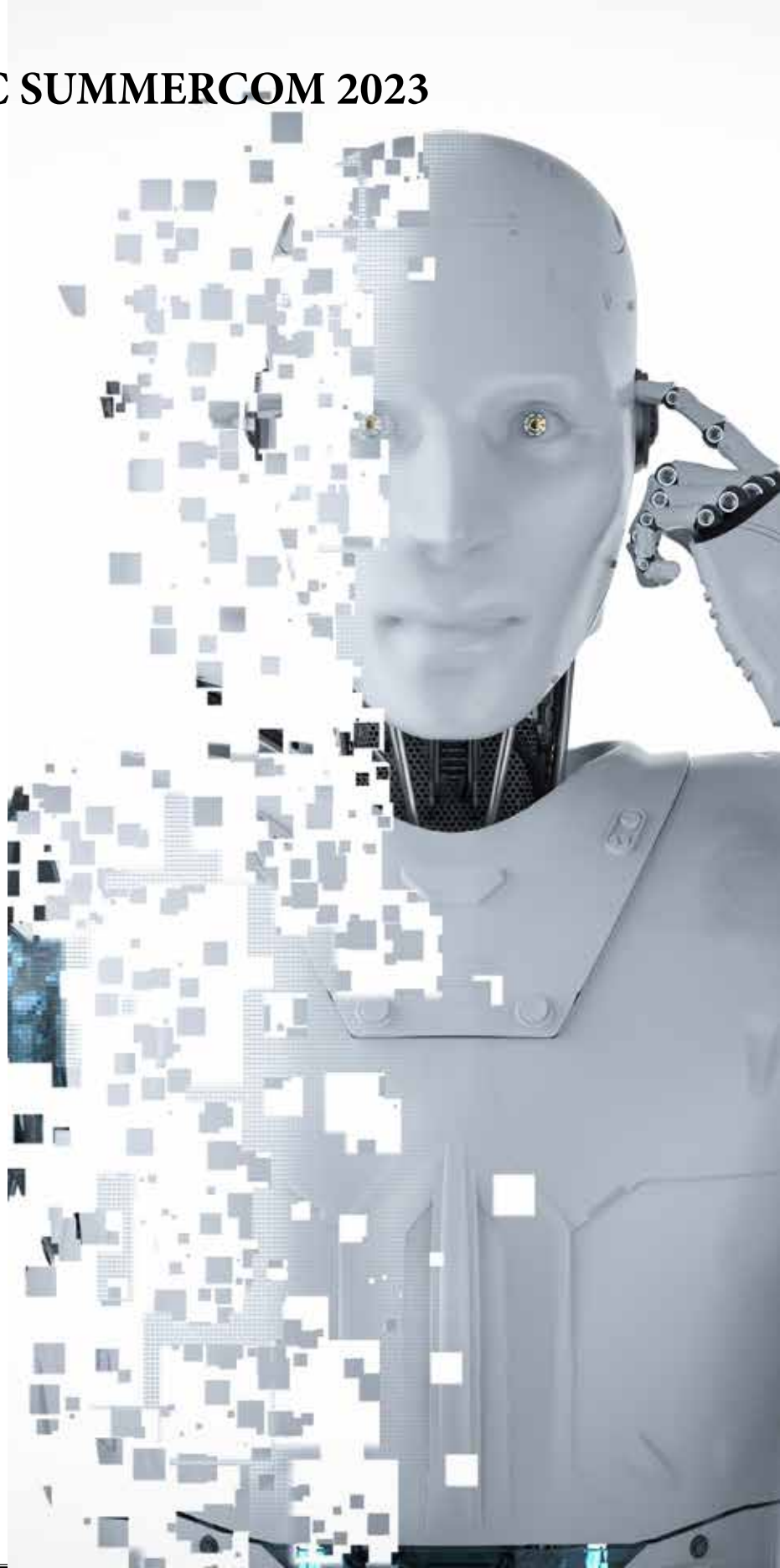
Recently Frank Honyotski attended IPC SummerCom which was held in Milwaukee, WI May 13-18, 2023. Here are some highlights of the standards/training meetings he attended.

The IPC J-STD-001J & IPC-A-610J Final Draft for Industry Review (FDIR) comments were dispositioned in May 2023. This means the documents will go to ballot. The Ballot group then has 30 days to submit comments. When the ballot(s) is finished it then goes to print. New documents should be available sometime this fall.

The IPC-7711/7721 Revision D is now ready for FDIR and after comments are dispositioned it will go to Ballot and is expected to be available in August 2023.

The IPC training staff informed the committees that IPC now plans to remove the workmanship from all programs at one time and not release it one course at a time. This effort is expected to take at least a revision cycle so we are thinking around the time that the Jstd-001 & 610 Revision K is released. There will be an overlap of time when the new courses launch to allow users time to implement the changes. The workmanship will be a separate credential from the document certification.

Hopefully, this information was informative. Please don't hesitate to contact us with any questions you may have.



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