

# CRM SW

## Options for ILOs

Tara Lannigan

Alex Bandar

John Foster

28 March 2025

## Benefits and Challenges of a CRM

### **BENEFITS**

- Saves valuable time (if you invest time up front)
- Ups your reporting game
  - Weekly basis for staff meetings, quarterly for “look ahead” meetings, and annual for NSF
- Easier to store and organize information
- Oftentimes there are integrations with your existing tools

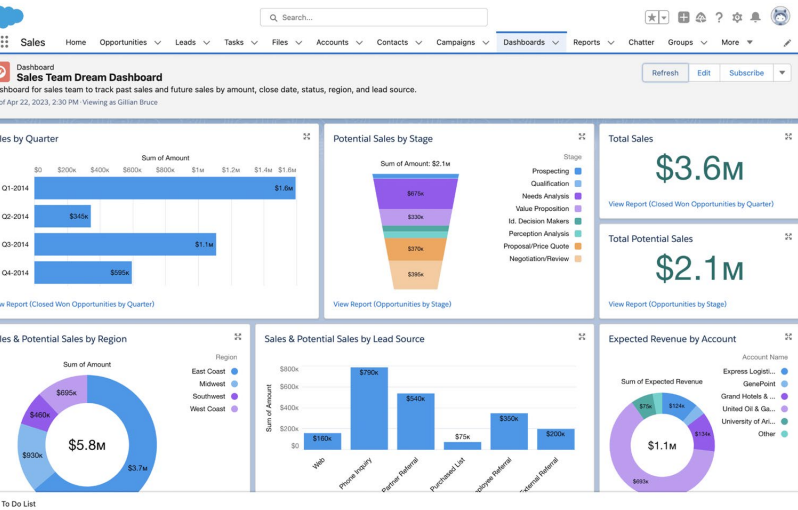
### **CHALLENGES**

- Adoption from other users (and yourself!)
  - Time investment in learning and building habits
- Every system has its quirks
- Privacy and security

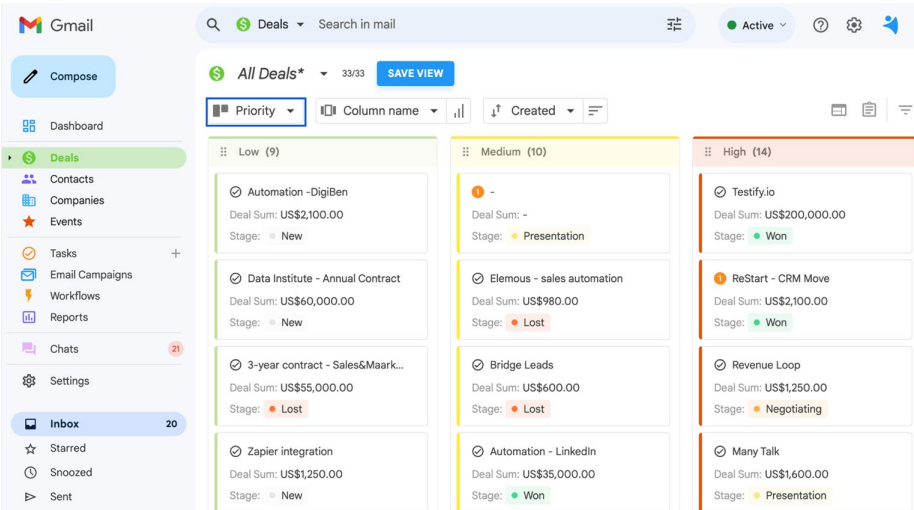
## What I've Used

CRM	Context	Highlight	Pros	Cons
<b>Salesforce</b>	Medium tech company (4000 people)	Most robust CRM, but maybe not necessary for our purposes	-Stellar customization -Plenty of integration options	-Slow to learn/implement -Expensive
<b>Monday.com</b>	Small tech startup (100 people)	Organized interface, affordable	-Decent customization and lots of views -Good templates and automation -Project management	-Medium learning curve -Hard to see all tasks from multiple boards
<b>NetHunt</b>	ERC	Embedded into Gmail but clunkier than other options	-Don't have to leave Gmail -Most responsive support team	-Clunky features include adding new contacts, reworking the dashboards -Costs extra to build out more customized reports

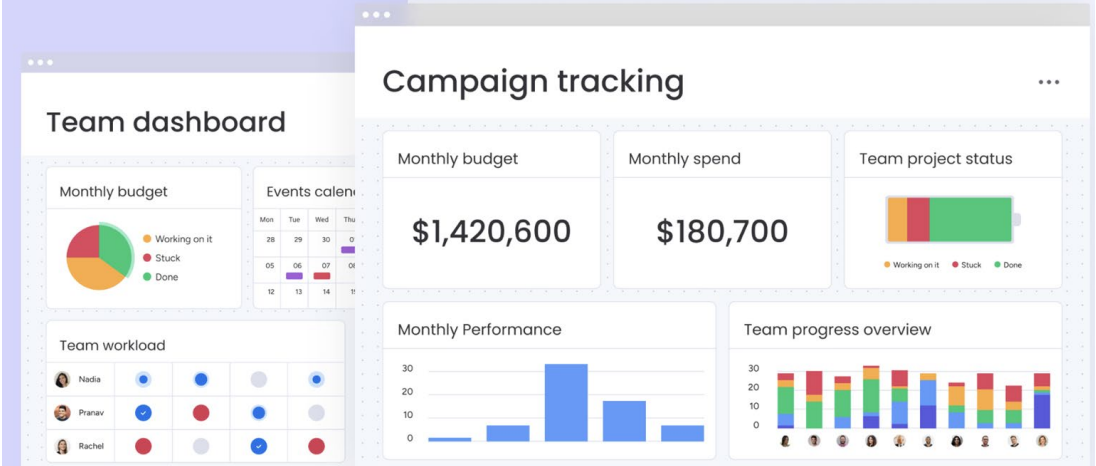
# Salesforce



# NetHunt



# Monday



## How I pitched CRM to my Center Director/MD

A CRM is an essential piece of managing our ecosystem of partners, leads, and contacts in an organized and efficient way.

Two options to consider are [Monday.com](#) and [NetHunt](#). We will not consider Salesforce due to price.

- **NetHunt** specifically highlights its integration with Gmail and LinkedIn, two tools that many CS3 team members already use and navigate well. *“NetHunt is not just integrated with Gmail – it is literally built inside it; blended with its UI. Learning our system is intuitive and seamless for existing Gmail users.”*
- Tara has experience using **Monday.com** and could jump right in without training. Monday.com also has a user-friendly interface that will allow other team members to pick it up easily.

Comparison of NetHunt vs. Monday.com [here](#).

Annual pricing for 5 users:

	Basic	Standard	Pro
Monday	\$720	\$1,020	\$1,680
NetHunt	\$1,440	\$2,040	\$2,880

Demos scheduled:

- **NetHunt** on Mon 10/21 at 9:00am
- **Monday.com** on Wed 10/23 at 2:15pm

## Comparing Options

- <https://www.softwareadvice.com/crm/>
- Check “compare” for as many CRMs you would like to compare side-by-side
- Other tools I’ve used:
  - Hubspot
  - Trello
  - Asana

Information

Architecture of the  
NSF HAMMER-ERC

Innovation

Ecosystem

Philosophy and Strategy for  
Communication, File Sharing, and more

# Outline

- Broad suite of tools NSF HAMMER-ERC uses for communication (2 minutes)
  - Teams, Circle, and more
- Narrower selection
  - Hubspot
    - Contacts, companies, search filters (5 minutes)
    - Emails, RSVPs (5 minutes)
- Questions?



# STEVEN JOHNSON

"A FIRST-RATE STORYTELLER." —*THE NEW YORK TIMES*

## WHERE GOOD IDEAS COME FROM

A *NEW YORK TIMES* BESTSELLER

## THE NATURAL HISTORY OF INNOVATION

"ENTERTAINING AND SMART."

—*LOS ANGELES TIMES*

FROM THE BESTSELLING  
AUTHOR OF *EVERYTHING*



The Liquid Network

Need	Options	Selected
A place where all of our contacts and their information are stored (with customizable fields and searchable filters)	Excel, AirTable, Hubspot	Hubspot
a way to communicate with all or segments of our community	Outlook, Mailchimp, Constant Contact, Hubspot	Hubspot
A way to communicate our wins, our brand, invite participants to join us, and grow our professional community	LinkedIn, Newsletter	LinkedIn + Newsletter
a way to communicate our wins, our brand, invite participants to join us, and grow our K-12 and informal community	Instagram, Facebook, YouTube	Instagram, YouTube, Newsletter
a newsletter tool to send communications to our community	Mailchimp, Constant Contact, Hubspot	Hubspot
a “digital, public headquarters” where people can learn everything they need to know about HAMMER	Hammer.osu.edu website	Hammer.osu.edu
a “digital, internal clubhouse” where our team (students, researchers, staff) can communicate informally but productively	Circle, Mighty Networks, Raklet, Nexodus, Wild Apricot, Teams	Circle
a digital repository for all of our files (data, processes, reports)	Teams, Google Drive, Dropbox, Box	Teams
a task management app	Teams “To Do”, Asana, Monday.com,	Teams “To Do”
a survey tool	Qualtrix, SurveyMonkey, Google Forms	Qualtrix



Hubspot



LinkedIn



Instagram



YouTube



hammer.OSU.edu



Teams



Circle

Circle



Microsoft Teams



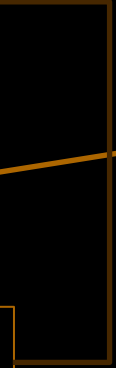
hammer@osu.edu



hammer@osu.edu



hammer@osu.edu



# Circle

Circle

Product ▾

Resources ▾

Pricing

Log in

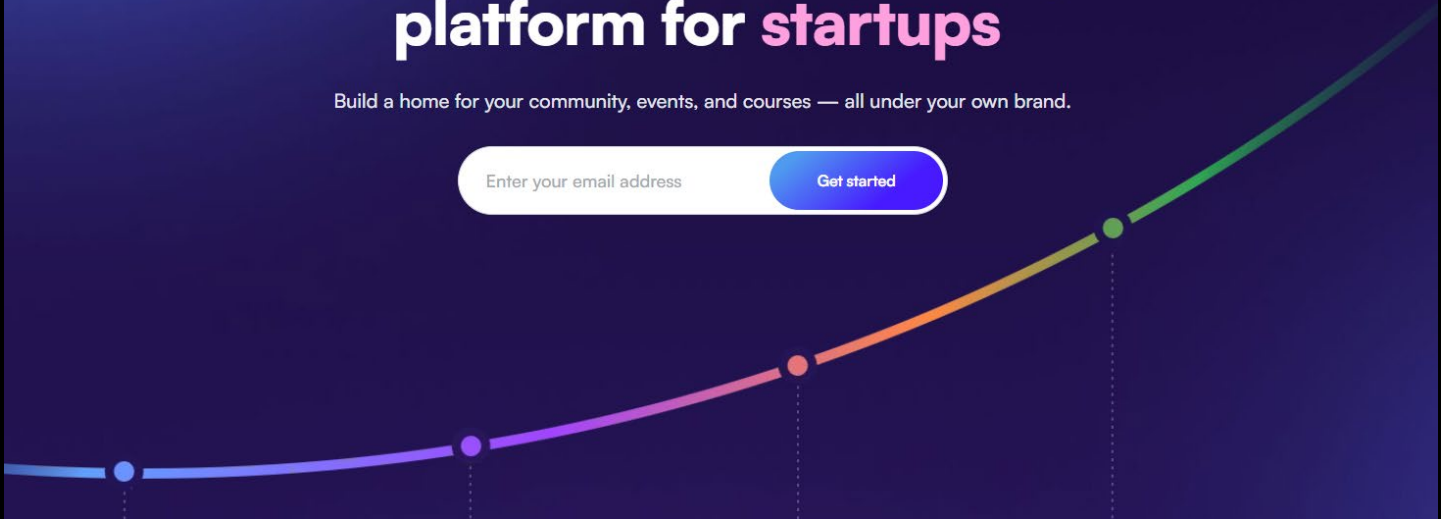
Get started

## The all-in-one community platform for startups

Build a home for your community, events, and courses — all under your own brand.

Enter your email address

Get started



Your trial ends in 10 days on 11/17. [Upgrade now](#) and take advantage of our annual discounts with up to 20% off!

Getting Started x

Feed

## Community

- Discussion
- HAMMER Members
- HAMMER Chat
- Job Board

## Links

- HAMMER Official Website
- Download the Android app
- Download the iOS app
- Add link

Go live

Powered by Circle

## Feed

Latest

Start a post



Alex Bandar Admin 2h  
Posted in Discussion



## How to use our digital community?

We recognize that there is a cognitive overhead to learning and using a new resource. We will work hard to ensure the benefits of this community will outweigh the costs, and thus promise to deploy these tools thoughtfully. This post should clarify...

See more

	Why/why not?	Main reason	Other reasons	Deal-breaker or why it's irrelevant
Viva Engage	Why not Viva Engage?	Need more than chat, member profiles	Too bad, b/c It's part of Teams, so we wouldn't need another app.	Can't get non-OSU emails to join.
slack	Why not Slack?	Need more than Chat	Slack can be confusing	There's a Slack-like feature in Circle
Discord	Why not Discord?	Need more than chat, audio		There's a Discord-like feature in Circle
WhatsApp groupme	Why not WhatsApp or GroupMe?	Need more than chat		Privacy - don't want to force people to share cell phone numbers
Circle	Why Circle?	We need chat, file sharing, video sharing, group meeting, push-notifications	We need to autonomy from university IT for full feature use	
mighty networks NEXUDUS Raklet Wild Apricot	Why not Mighty Networks, Raklet, Nexus, Wild Apricot, Tribe, etc?	Circle has the best and cleanest UX of these		

## Get started

- Basics
- Setup a payroll
- Invite your first members








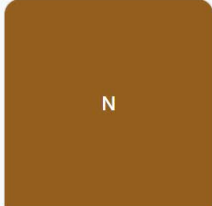
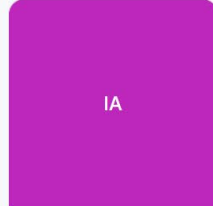

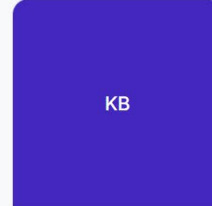






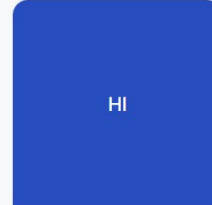


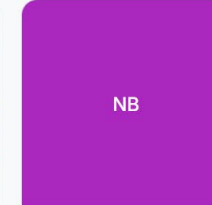


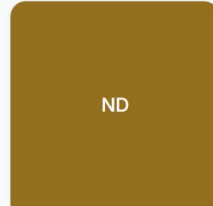

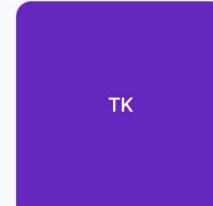

## Trending Posts

- ATI Specialty Materials  
Alex Bandar
- What is this digital HAMMER community for?  
Alex Bandar
- How to use our digital community?  
Alex Bandar
- How to use the Circle Mobile App  
Alex Bandar

- Getting Started
- Feed
- Community
  - Discussion
  - HAMMER Members**
  - HAMMER Chat
  - Job Board
- Links
  - HAMMER Official Website
  - Download the Android app
  - Download the iOS app
  - Add link

HAMMER Members (41)

Latest

 Yue Ma	 JIAJIE WU	 Cody Badaeux	 Tara Wagener	 Brian Thurston Agility Forge - Plate Bender	 Jag Sankar	 Princess Munnie Maiga
 Nooralhuda	 Issa W. AlHmoud	 Jennifer Fillingar	 Kathleen Babusci	 Mick Bastuga	 Faith Rolark PhD Candidate	 Nick Domicone (OSU) HAMMER ERC Program M...
 Richard Holdbrook An aspiring Industrial Robo...	 john lewandowski Faculty-CWRU	 Brett Ley PhD Student	 Hyeji Im	 Vishnu Ramasamy	 Derick Suarez	 Nathan Bianco
		 ND		 TK		





### Thrusts and Testbeds Thursday



Tell us about your Thrust, Testbed, or Project!

Vishnu replied 2 months ago

0 5



Quick post about some "wow" tech

Alex posted 2 months ago

1 0



Tech Tuesday - comparison of FEM simulated part to real part

Alex posted 2 months ago

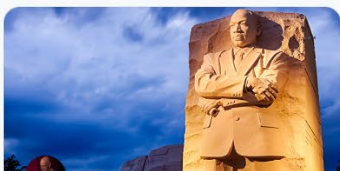
0 0



Tell us about yourself!

Glenn replied 2 months ago

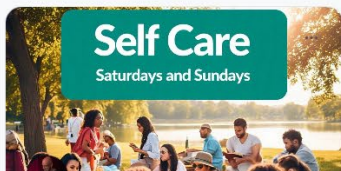
0 5



Martin Luther King Jr. Day

Alex posted 2 months ago

1 0



Self Care Saturdays and Sundays

Alex posted 2 months ago

0 0



Thrusts and Testbeds Thursday - Agility Forge!

Alex posted 2 months ago



Wow Wednesday!

Alex replied 2 months ago



Measuring temperature with IR

Alex replied 2 months ago





## Publication of a HAMMER-funded paper



**Richard Holdbrook** Nov 15, 2024  
An aspiring Industrial Robotics Engineer

🎉 Exciting News! 🎉

I'm thrilled to announce the publication of my latest research paper, "Network-Based Intrusion Detection for Industrial and Robotics Systems: A Comprehensive Survey," in the journal Electronics. This is my first published paper from my project in the field of cybersecurity in smart manufacturing, industrial, and robotic systems. This paper addresses the unique cybersecurity challenges faced by industrial and robotic systems, exploring modern intrusion detection methods such as machine learning, deep learning, and hybrid approaches to enhance detection accuracy and reduce false positives.

🔍 What's in it for Researchers? This survey lays the groundwork for understanding how cyberattacks impact these systems and will serve as a foundation for analyzing the faults they generate after detection. It provides an overview of state-of-the-art methodologies, relevant datasets, and the role of emerging technologies like federated learning, blockchain, and digital twins in securing industrial and robotic environments.

🙏 Acknowledgments: I would like to thank Dr. [Sun Yi](#), who has been my rock and shield, always motivates me, and provides an enabling environment through funding, work flexibility, and words of encouragement for me to relax and do my best work. God richly bless you 🙏. Special thanks to [NSF HAMMER Engineering Research Center](#) for funding this research.

📄 PLEASE Read, Cite, Comment, and Share the full paper here:  
<https://doi.org/10.3390/electronics13224440>



5 likes · 1 comment



**Alex Bandar** Admin T306 The Ohio State Unive... Nov 15, 2024

Congratulations Richard! Very exciting. Thanks so much for sharing. Looking forward to connecting this afternoon!

Like Reply

1 like



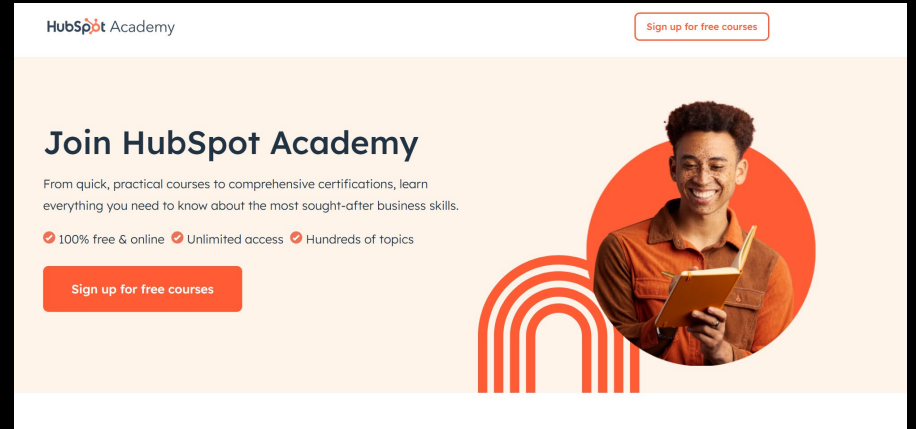
What are your thoughts?



*How to use Hubspot*

# Hubspot

- Many ways to use it; many online tutorials
- How NSF HAMMER-ERC uses it
  - Contacts list (people, companies)
  - Newsletter feature
  - Matchmaking between people with challenges and people with skills/experience



The image shows a landing page for HubSpot Academy. At the top left, the text "HubSpot Academy" is displayed. In the top right corner, there is a button that says "Sign up for free courses". The main heading is "Join HubSpot Academy". Below this, a sub-headline reads: "From quick, practical courses to comprehensive certifications, learn everything you need to know about the most sought-after business skills." Underneath, there are three bullet points: "100% free & online", "Unlimited access", and "Hundreds of topics". A prominent orange button with the text "Sign up for free courses" is located below the bullet points. On the right side of the page, there is a circular image of a smiling man in an orange shirt holding a notebook, with a stylized orange graphic of concentric arches behind him.

# Contacts, Companies & Search Filters

1-15 of 15 results

Search all templates 🔍

### Create dashboards from scratch

+ New dashboard

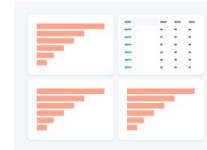
### Create dashboards from templates



#### Accounts Receivable

View your outstanding invoices and how long they've been past due. Compare the amount you collected each month to the...

Includes 7 default reports ⓘ



#### Chat Overview

See the types of requests your team receives over chat.

Includes 6 default reports ⓘ



#### Email Overview

View the types of requests your team receives over email.

Includes 6 default reports ⓘ



#### Marketing

Monitor your website performance and contact activity.

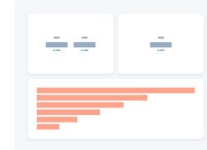
Includes 9 default reports ⓘ



#### Marketing Channel Performance

Monitor key metrics for your core marketing channels, from landing pages to social media.

Includes 10 default reports ⓘ



#### Marketing Contacts

Learn which sources are producing more marketing contacts.

Includes 10 default reports ⓘ



1-15 of 15 results

Search all templates



CRM

Contacts

Companies

Deals

Tickets

Lists

Inbox

Calls

Tasks

### Create dashboards from scratch

+ New dashboard

### Create dashboards from templates



#### Accounts Receivable

View your outstanding invoices and how long they've been past due. Compare the amount you collected each month to the...

Includes 7 default reports ⓘ



#### Chat Overview

See the types of requests your team receives over chat.

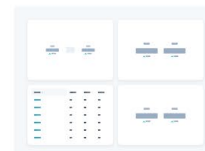
Includes 6 default reports ⓘ



#### Email Overview

View the types of requests your team receives over email.

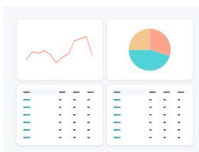
Includes 6 default reports ⓘ



#### Marketing

Monitor your website performance and contact activity.

Includes 9 default reports ⓘ



#### Marketing Channel Performance

Monitor key metrics for your core marketing channels, from landing pages to social media.

Includes 10 default reports ⓘ



#### Marketing Contacts

Learn which sources are producing more marketing contacts.

Includes 10 default reports ⓘ

Contacts

363 records

Data Quality

Actions

Import

Create contact

All contacts

+ Add view (1/50) All Views

Contact owner

Create date

Last activity date

Lead status

+ More

Advanced filters

Search name, phone, emc

Export

Edit columns

	NAME	EMAIL	PHONE NUMBER	CONTACT OWNER	LAST ACTIVITY DATE (EDT)	LEAD STATUS
<input type="checkbox"/>	Yaoke	[REDACTED]	northw...	--	No owner	--
<input type="checkbox"/>	Yahui Z	[REDACTED]	wester...	--	No owner	--
<input type="checkbox"/>	Xingya	[REDACTED]	northwe...	--	No owner	--
<input type="checkbox"/>	Weizhe	[REDACTED]	--	--	No owner	--
<input type="checkbox"/>	Weikan	[REDACTED]	--	--	No owner	--
<input type="checkbox"/>	Wright	[REDACTED]	--	--	No owner	--
<input type="checkbox"/>	Colton	[REDACTED]	yemail...	--	No owner	--
<input type="checkbox"/>	William	[REDACTED]	--	--	No owner	--
<input type="checkbox"/>	Meg W	[REDACTED]	eyemai...	--	No owner	--
<input type="checkbox"/>	William	[REDACTED]	e.civ@...	--	Alex Bandar - HAMMER...	--
<input type="checkbox"/>	Will Cu	[REDACTED]	u.edu	--	No owner	--
<input type="checkbox"/>	Barton	[REDACTED]	du	--	No owner	--
<input type="checkbox"/>	Wei Ch	[REDACTED]	ern.edu	--	No owner	--

### All Filters



## Contacts

363 records

All contacts

+ Add view (1/50) All Views

Contact owner Create date Last activity date Lead status + More Advanced filters

Search name, phone, email

<input type="checkbox"/>	NAME	EMAIL	PHONE NUMBER	CONTACT OWNER
<input type="checkbox"/>	Yaoke	[Redacted]	[Redacted]	No owner
<input type="checkbox"/>	Yahoo Z	[Redacted]	[Redacted]	No owner
<input type="checkbox"/>	Xingya	[Redacted]	[Redacted]	No owner
<input type="checkbox"/>	Weizhe	[Redacted]	[Redacted]	No owner
<input type="checkbox"/>	Weikan	[Redacted]	[Redacted]	No owner
<input type="checkbox"/>	Wright	[Redacted]	[Redacted]	No owner
<input type="checkbox"/>	Colton	[Redacted]	[Redacted]	No owner
<input type="checkbox"/>	William	[Redacted]	[Redacted]	No owner
<input type="checkbox"/>	Meg W	[Redacted]	[Redacted]	No owner
<input type="checkbox"/>	William	[Redacted]	[Redacted]	Alex Bandar - I
<input type="checkbox"/>	Will C	[Redacted]	[Redacted]	No owner
<input type="checkbox"/>	Barton	[Redacted]	[Redacted]	No owner
<input type="checkbox"/>	Wei C	[Redacted]	[Redacted]	No owner

### Advanced Filters

This view doesn't have any advanced filters. Select a filter to begin.

### Add filter

Search in contact properties

### Contact activity

- Abc Campaign of last booking in me...
- Currently in workflow (to be disc...
- Date of last meeting booked in ...
- Abc First conversion
- First conversion date
- Last activity date
- Last contacted
- Last Engagement Date
- Abc Medium of last booking in meeti...
- Abc Membership notes
- Abc Message
- Next activity date
- Now in Sequence
- # Number of sales activities
- # Number of times contacted
- Recent sales email open date
- Recent sales email replied date



### Contacts

365 records

All contacts

+ Add view (1/50) All Views

Contact owner Create date Last activity date Lead status + More Advanced filters

Search name, phone, em...

<input type="checkbox"/>	NAME	EMAIL	PHONE NUMBER	CONTACT OWNER
<input type="checkbox"/>	Yaoko... northw...		--	No owner
<input type="checkbox"/>	Yahui... vester...		--	No owner
<input type="checkbox"/>	Xingy... orthwe...		--	No owner
<input type="checkbox"/>	Weizh...		--	No owner
<input type="checkbox"/>	Weika...		--	No owner
<input type="checkbox"/>	Wright...		--	No owner
<input type="checkbox"/>	Colto... email...		--	No owner
<input type="checkbox"/>	Willia...		--	No owner
<input type="checkbox"/>	Meg V... yemai...		--	No owner
<input type="checkbox"/>	Willia... e.civ@...		--	Alex Bandar - I
<input type="checkbox"/>	Will C... .edu		--	No owner
<input type="checkbox"/>	Barto... lu		--	No owner
<input type="checkbox"/>	Wei C... ern.edu		--	No owner

### All Filters

#### Advanced Filters

This view doesn't have any advanced filters. Select a filter to begin.

#### Add filter

Search in contact properties

#### HAMMER Details

- # % HAMMER SUPPORT
- 2024 Q4 Meeting held?
- ACTIVE (yes/no)
- ADVISOR (n/a or name)
- CDA (n/a or yes/no)
- CO-ADVISOR (different institutio...
- Company Name (n/a or compan...
- Date to Renew (n/a or date)
- DEPT (MS&E, EE, CS, Design, Me...
- # FUNDING (percentage)
- HAMMER Member (n/a; in kind, ...)
- Industrial Mentor (n/a or name)
- Industry (yes/no)
- Invoice (n/a or last date sent)
- Invoicing Contact
- Keyword paragraph



### Contacts

363 records

All contacts + Add view (1/50) All Views

Contact owner ▼ Create date ▼ Last activity date ▼ Lead status ▼ + More ≡ Advanced filters

Search name, phone, em:

<input type="checkbox"/>	NAME	EMAIL	PHONE NUMBER	CONTACT OWNER
<input type="checkbox"/>	Yaoke ...	...	--	No owner
<input type="checkbox"/>	Yahui ...	...	--	No owner
<input type="checkbox"/>	Xingy ...	...	--	No owner
<input type="checkbox"/>	Weizh ...	...	--	No owner
<input type="checkbox"/>	Weika ...	...	--	No owner
<input type="checkbox"/>	Wriht ...	...	--	No owner
<input type="checkbox"/>	Colto ...	...	--	No owner
<input type="checkbox"/>	Willia ...	...	--	No owner
<input type="checkbox"/>	Meg V ...	...	--	No owner
<input type="checkbox"/>	Willia ...	...	--	Alex Bandar - I
<input type="checkbox"/>	Will C ...	...	--	No owner
<input type="checkbox"/>	Barto ...	...	--	No owner
<input type="checkbox"/>	Wei C ...	...	--	No owner

### All Filters

#### Advanced Filters

This view doesn't have any advanced filters. Select a filter to begin.

#### Add filter

✕

#### HAMMER Details

Keyword paragraph

Thesis Keywords



### Contacts

363 records

All contacts + Add view (1/50) All Views

**Contact owner** **Create date** **Last activity date** **Lead status** **+ More** **Advanced filters**

Search name, phone, em:

<input type="checkbox"/>	NAME	EMAIL	PHONE NUMBER	CONTACT OWNER
<input type="checkbox"/>	Zih...	[REDACTED]	orthwe...	No owner
<input type="checkbox"/>	Zhig...	[REDACTED]	--	No owner
<input type="checkbox"/>	Fran...	[REDACTED]	--	Alex Bandar - I
<input type="checkbox"/>	Zach...	[REDACTED]	mail.shc...	No owner
<input type="checkbox"/>	Yeoh...	[REDACTED]	--	No owner
<input type="checkbox"/>	Yixi...	[REDACTED]	--	No owner
<input type="checkbox"/>	Yao...	[REDACTED]	--	No owner
<input type="checkbox"/>	Yixu...	[REDACTED]	--	No owner
<input type="checkbox"/>	Your...	[REDACTED]	--	No owner
<input type="checkbox"/>	Ying...	[REDACTED]	hweste...	No owner
<input type="checkbox"/>	Yi-P...	[REDACTED]	northw...	No owner
<input type="checkbox"/>	Tyle...	[REDACTED]	u	No owner
<input type="checkbox"/>	Yaok...	[REDACTED]	northw...	No owner

### All Filters

#### Advanced Filters

##### Group 1

**Keyword paragraph** is equal to any of

AND

+ Add filter

OR

+ Add filter group

#### Edit filter

##### Keyword paragraph

is equal to any of

is equal to any of

is not equal to any of

contains exactly

doesn't contain exactly

is known

is known



### Contacts ▼

363 records

All contacts + Add view (1/50) All Views

Contact owner ▼ Create date ▼ Last activity date ▼ Lead status ▼ + More ≡ Advanced filters

Search name, phone, em:

<input type="checkbox"/>	NAME	EMAIL	PHONE NUMBER	CONTACT OWNER
<input type="checkbox"/>	Zihan	[REDACTED]	--	No owner
<input type="checkbox"/>	Zhiga	[REDACTED]	--	No owner
<input type="checkbox"/>	Fran	[REDACTED]	--	Alex Bandar -
<input type="checkbox"/>	Zache	[REDACTED]	--	No owner
<input type="checkbox"/>	Yeoh	[REDACTED]	--	No owner
<input type="checkbox"/>	Yixia	[REDACTED]	--	No owner
<input type="checkbox"/>	Yao F	[REDACTED]	--	No owner
<input type="checkbox"/>	Yixue	[REDACTED]	--	No owner
<input type="checkbox"/>	Youn	[REDACTED]	--	No owner
<input type="checkbox"/>	Ying-	[REDACTED]	--	No owner
<input type="checkbox"/>	Yi-Pin	[REDACTED]	--	No owner
<input type="checkbox"/>	Tyler	[REDACTED]	--	No owner
<input type="checkbox"/>	Yaok	[REDACTED]	--	No owner

### All Filters

#### Advanced Filters

Discard

#### Group 1

**Keyword paragraph** contains exactly **machine learning**

AND  
+ Add filter

OR  
+ Add filter group

#### Edit filter

**Keyword paragraph** ↔ 🗑️

contains exactly ▼

machine learning ✕ ✎

Type to add a value to this filter



FUNDING (percentage)

HAMMER Member (n/a; in kind, \$1000, \$5000, \$25000, \$50000, \$75000)

Industrial Mentor (n/a or name)

Industry (yes/no)

Invoice (n/a or last date sent)

Invoicing Contact

Keyword paragraph

Machine learning, blockchain, cybersecurity, data privacy



Details

Membership Agreement (n/a or yes/no)

NSF Review Board

Need Demographics

Student Mentee (n/a or name or list of names)

Student?

TESTBED (TB101, TB201, TB301 TB401)

TUITION WAIVER

Thesis Keywords



### Contacts

363 records

All contacts + Add view (1/50) All Views

Contact owner ▼ Create date ▼ Last activity date ▼ Lead status ▼ + More ≡ Advanced filters

Search name, phone, em:

<input type="checkbox"/>	NAME	EMAIL	PHONE NUMBER	CONTACT OWNER
<input type="checkbox"/>	Zihan C	[REDACTED]	[REDACTED]	No owner
<input type="checkbox"/>	Zhigan		--	No owner
<input type="checkbox"/>	Fran Z		--	Alex Bandar -
<input type="checkbox"/>	Zachar	l.shc...	--	No owner
<input type="checkbox"/>	Yeoheu		--	No owner
<input type="checkbox"/>	Yixiao		--	No owner
<input type="checkbox"/>	Yao Fu		--	No owner
<input type="checkbox"/>	Yixue		--	No owner
<input type="checkbox"/>	Younho		--	No owner
<input type="checkbox"/>	Ying-K	este...	--	No owner
<input type="checkbox"/>	Yi-Ping	rthw...	--	No owner
<input type="checkbox"/>	Tyler W		--	No owner
<input type="checkbox"/>	Yaoko	rthw...	--	No owner

### All Filters

Advanced Filters Discard

Group 1 📄 🗑️

Keyword paragraph contains exactly machine learning

AND   
Keyword paragraph contains exactly robotics

AND + Add filter

OR + Add filter group

Edit filter

Keyword paragraph ↔️ 🗑️

contains exactly ▼  
robotics × ✎  
Type to add a value to this filter



HAMMER Member (n/a; in kind, \$1000, \$5000, \$25000, \$50000, \$75000)

Industrial Mentor (n/a or name)

Industry (yes/no)

Details

Invoice (n/a or last date sent)

Invoicing Contact

Keyword paragraph

Robotics, Machine Learning

Membership Agreement (n/a or yes/no)

NSF Review Board

Need Demographics

Student Mentee (n/a or name or list of names)

Student?

TESTBED (TB101, TB201, TB301 TB401)

TB201 x

TUITION WAIVER

Thesis Keywords

Thesis Title

# Codified / Uniformized Glossary of Terms

- Numerical Modeling
- Numerical Forming
- Numerical Simulation
- Finite Element Modeling
- Finite Element Analysis
- Microstructure Modeling
- Microstructure Evolution  
Modeling
- Digital Twin
- Digital Twinning

Artificial Intelligence

AI

Machine Learning

ML

LLM

Neural Network

Neural Networks

Neural Networking

Characterization

Material Testing

Material Assessment



# Marketing, Newsletters & RSVPs

Search Filters



Marketing

Campaigns



Email

Social



Ads

Events

Forms

CTAs

Buyer Intent

Lead Scoring



HAMMER Member (n/a; in kind, \$1000, \$5000, \$25000, \$50000, \$75000)

Industrial Mentor (n/a or name)

Industry (yes/no)

Invoice (n/a or last date sent)

Invoicing Contact

Keyword paragraph

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NSF Review Board

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Student?

TESTBED (TB101, TB201, TB301 TB401)

TB201



TUITION WAIVER

Thesis Keywords

Thesis Title



Search HubSpot

Ctrl K



Copilot

NSF-HAMMER-ERC

## Marketing Email

25 Marketing emails

Email tools

Create email

Manage

Analyze

Health

All emails



Drafts

Scheduled

Sent

Archived

+ Add view (5/50)

All views

Email types

Advanced filters (0)

Save view

Search email name or subject line

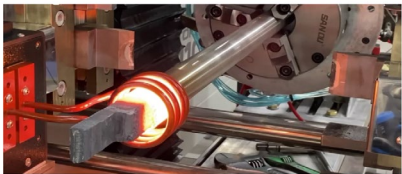


Edit columns

Export emails

<input type="checkbox"/>	EMAIL NAME	DELIVERED	OPEN RATE	CLICK RATE	LAST UPDATED AT (EDT)	LAST UPD
<input type="checkbox"/>	IBAB March 2025 Update - real	11	27.27%	0%	March 25, 2025 8:36 AM	Alex Ban
<input type="checkbox"/>	IBAB March 2025 Update (Non-openers)	112	8.93%	3.57%	March 20, 2025 10:05 PM	Alex Ban
<input checked="" type="checkbox"/>	IBAB March 2025 Update	148	23.65%	7.43%	March 18, 2025 12:30 PM	Alex Ban
<input type="checkbox"/>	NSF HAMMER-ERC 2025 Manufacturing Forum Save the Date	0	0%	0%	January 23, 2025 9:53 PM	Alex Ban
<input type="checkbox"/>	Student and Faculty Newsletter Template - 1-21-2025	75	60%	5.33%	January 21, 2025 12:59 PM	Alex Ban

[View in browser](#)



## NSF HAMMER-ERC Industry Members Update March, 2025

Dear ,

**Thank you for your interest in the NSF HAMMER-ERC. A few updates and invitations below.**

1. Open invitation to all for our industry connects - and how to be more involved
2. Progress on our research, hardware, and software - and how to learn more
3. An invitation to connect - share your interests and needs directly with us

### 1. Invitation to attend open meetings

We have public "industry member" meetings to whom all are invited, on the 3rd Friday of each month. These are general informational meetings about our projects and progress. Schedule below - please join us!

Next date - THIS FRIDAY 3/21/2025, 12pm-1pm EST. [RSVP via Eventbrite here](#).  
Following date - Friday 4/18/2025, 12pm-1pm EST. [RSVP via Eventbrite here](#).

If you'd like to become more involved as an "industry advisory member", with special invitations to more detailed meetings, we ask you to join NSF HAMMER-ERC as one of our members. Email [bandar.3@osu.edu](mailto:bandar.3@osu.edu) or call/text at 614-893-6053 for details to join, or start the process on your own here:  
<https://hammer.osu.edu/hammer-membership-information>.

### 2. Progress on our research, hardware, and software

Every week we make progress in our thrusts, testbeds, and projects. As a quick reminder, we are actively pursuing the topics below. Each of these groups meets monthly. If you'd like to learn more about any of these topics, or if you'd like to join the meetings, please email Alex Bandar at [bandar.3@osu.edu](mailto:bandar.3@osu.edu), or call/text any time, or schedule a meeting here (15 minutes, 30 minutes, or 60 minutes) to join as an official NSF HAMMER-ERC industry member. Thank you!

#### Research Thrusts:

- T1: Design ([link](#))
- T2: Tools and Process Convergence ([link](#))
- T3: Materials State Awareness ([link](#))
- T4: Control, Intelligence, Autonomy ([link](#))

#### Testbeds ([links](#))

- TB1: PET-FABs (small-scale hardware forming systems for labs, schools, and more)
- TB2: POCH (Point of Care Manufacturing for the medical industry)
- TB3: Numerical Forming (digital modeling of our forming processes)

[Link to print \(white background\) flyer](#)

[Unlisted YouTube video of the Agility Forge in action](#)



*Images of the rods autonomously forged by the NSF HAMMER-ERC "Agility Forge".  
First attempt to third attempt occurred over a few days of iteration. Still not quite perfect but showing a steep ascent towards a finished part forged automatically from a CAD file*

### 3. Opportunity to connect - 15 minute, 30 minute, or 60 minute

We would be glad to have more focused conversations on how NSF HAMMER-ERC may apply to you and your organization. We would also like the opportunity to find out more about *your* needs and interests - if there are areas of overlap, let's discover them - with the potential of rolling them into our research thrusts, testbeds, and projects. Please feel free to email Alex Bandar at [bandar.3@osu.edu](mailto:bandar.3@osu.edu), or call/text any time at 614-893-6053, or schedule a meeting below. Looking forward to connecting!

*(When you click any of the links below, please then choose "Continue as Guest")*

Quick 15 minute chat - [link to schedule here](#)  
30 minute connect - [link to schedule here](#)  
60 minute conversation - [link to schedule here](#)

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We would be glad to have more focused conversations on how NSF HAMMER-ERC may apply to you and your organization. We would also like the opportunity to find out more about *your* needs and interests - if there are areas of overlap, let's discover them - with the potential of rolling them into our research thrusts, testbeds, and projects. Please feel free to email Alex Bandar at [bandar.3@osu.edu](mailto:bandar.3@osu.edu), or call/text any time at 614-893-6053, or schedule a meeting below. Looking forward to connecting!

*(When you click any of the links below, please then choose "Continue as Guest")*

Quick 15 minute chat - [link to schedule here](#)  
30 minute connect - [link to schedule here](#)  
60 minute conversation - [link to schedule here](#)

Book time with us (after you click, choose "Continue as Guest")

**Thank you for your interest and participation in  
NSF HAMMER-ERC!**



< [Back to all emails](#)

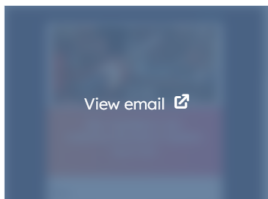
# IBAB March 2025 Update

● Sent | Regular email

Actions ▾

Export ▾

Edit email



Subject  
NSF HAMMER-ERC January 2025 Update  
  
Sent date  
March 18, 2025 12:25 PM UTC-04:00 by Alex Bandar -  
HAMMER Innovation Ecosystem Director

[See details](#)

Included lists  
**non-student-non-hammer-university-staff-2025-03-18**

Simple workflows (0)

Performance

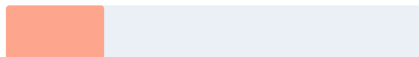
Recipients

● Bot filtering is currently ON

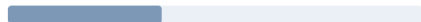
Sent to 150, delivered to 148

Open rate 23.65% ⓘ

Excluding bots



(Including bots, this open rate would be 37.16%)



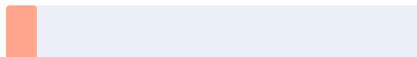
Unique opens, excluding bots ⓘ **35**

Total opens, excluding bots ⓘ **136**

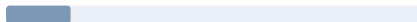
DESKTOP 66% MOBILE 13% OTHER 21% ⓘ

Click rate 7.43% ⓘ

Excluding bots

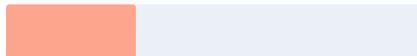


(Including bots, this click rate would be 15.54%)

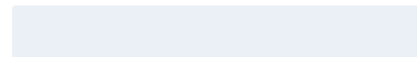


Click-through rate 31.43% ⓘ

Excluding bots



Reply rate 0% ⓘ

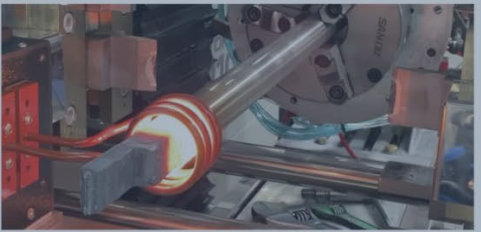


Unique replies ⓘ **0**

Make sure you're using a **HubSpot connected inbox** as your reply-to address to track replies

## HTML click map

View in 0%



### NSF HAMMER-ERC Industry Members Update

March, 2025

Dear ,

**Thank you for your interest in the NSF HAMMER-ERC. A few updates and invitations below.**

1. Open invitation to all for our industry connects - and how to be more involved
2. Progress on our research, hardware, and software - and how to learn more
3. An invitation to connect - share your interests and needs directly with us

By the way, you're receiving this announcement because you are an active member of NSF HAMMER-ERC or have expressed interest in learning more. If you have any recommendations for other members, or if you'd like to change your status, please contact Alex Bandar at bandar3@osu.edu or 614-893-6153.  
Thank you!

[View larger](#)

## Top clicked links

Combined

HTML

Plain text

LINK	CLICKS
<a href="https://www.eventbrite.com/e/1291226115069">https://www.eventbrite.com/e/1291226115069</a>	4
<a href="https://buckeyemailosu-my.sharepoint.com/:b:g/personal/ban...">https://buckeyemailosu-my.sharepoint.com/:b:g/personal/ban...</a>	4
<a href="https://hammer.osu.edu/research-thrusts/research-thrusts/rese...">https://hammer.osu.edu/research-thrusts/research-thrusts/rese...</a>	3
<a href="https://hammer.osu.edu/research-thrusts/research-thrusts/rese...">https://hammer.osu.edu/research-thrusts/research-thrusts/rese...</a>	3

< Prev **1** 2 3 Next >

## Top engaged contacts

Opens

Clicks

CONTACT	
Molly M <a href="#">face.com</a>	30
Dean B	18
David H	11
Phil Chi	8

< Prev **1** 2 3 4 Next >

Dear ,

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1. Open invitation to all for our industry connects - and how to be more involved
2. Progress on our research, hardware, and software - and how to learn more
3. An invitation to connect - share your interests and discuss directly with us

If you are receiving this announcement because you are an actual member of our membership or have requested contact in writing from us, if you have any recommendations for other members, or if you would like to change your email address please contact the people listed below about our membership.

### 1. Invitation to attend open meetings

We have public "industry member" meetings to inform all of our invited, on the 3rd Friday of each month. These are general informational meetings about our projects and progress. Schedule below - please join us!

Next date - THIS FRIDAY 3/21/2025, 12pm-1pm EST. [RSVP via Eventbrite here](#)  
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#### Research Thrusts

- T1: Design [\(link\)](#)
- T2: Tools and Process Convergence [\(link\)](#)
- T3: Materials State Awareness [\(link\)](#)
- T4: Control, Intelligence, Autonomy [\(link\)](#)

#### Testbeds / Use

- TB1: PESTAB (small scale hardware forming systems for labs, schools, and more)
- TB2: POCM (Point of Care Manufacturing for the medical industry)
- TB3: Numerical Forming (digital modeling of our forming processes)
- TB4: Process for Preparation (methods to achieve a given property via forming)

Graphical items depicting much of the above are linked to below:

[Link to digital Asset Management App](#)

[Link to the testbed data repository](#)

[Link to the code of the Apply Forge on github](#)



Images of bar rods automatically forged by the NSF HAMMER-ERC "Apply Forge". First attempt to thread attempt occurred over a new die or die set. Still not quite perfect but showing a steep ascent towards a finished part forged automatically from a CAD file.

### 3. Opportunity to connect - 15 minute, 30 minute, or 60 minute

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Research Thrusts [\(link\)](#)

T1: Design [\(link\)](#)

T2: Tools and Process Convergence [\(link\)](#)

1 16.7%

4.2%

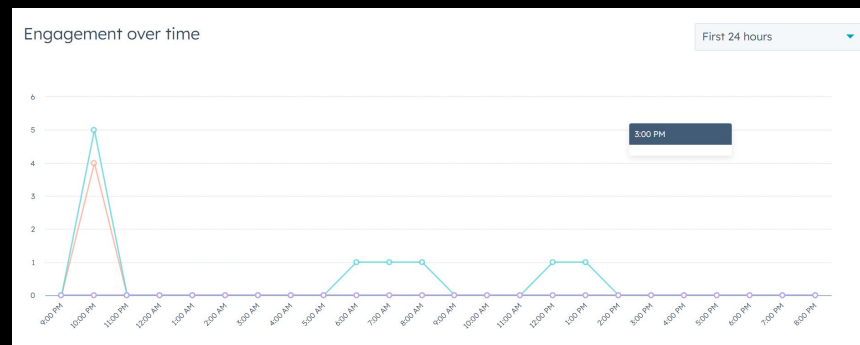
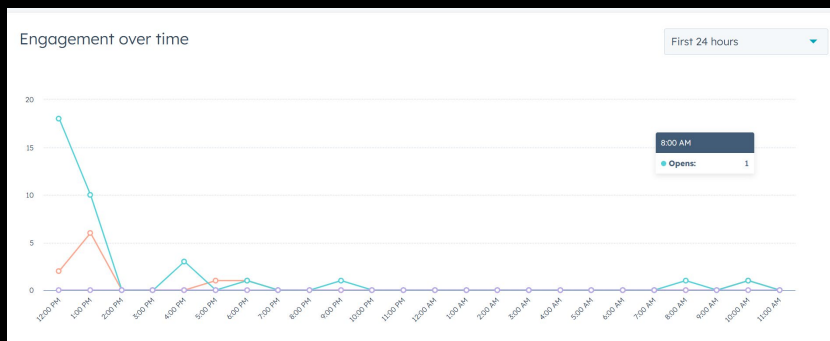
4.2%

8.3%

2 12.5%

8.3%

<input type="checkbox"/>	EMAIL NAME ⓘ	DELIVERED ⓘ	OPEN RATE ⓘ	CLICK RATE ⓘ	LAST UPDATED AT (EDT) ⓘ
<input type="checkbox"/>	● IBAB March 2025 Update - real	11	27.27%	0%	March 25, 2025 8:36 AM
<input type="checkbox"/>	● IBAB March 2025 Update (Non-openers)	112	8.93%	3.57%	March 20, 2025 10:05 PM
<input type="checkbox"/>	● IBAB March 2025 Update	148	23.65%	7.43%	March 18, 2025 12:30 PM





# Event dashboard

📅 Jan 17, 2025 at 12:00pm

Event link <https://www.eventbrite.com/e/monthly-virtual-connect-for-nsf-hammer-erc-industry-members-tick...>

📄 Copy link

🔗 Share

Tickets Sold

**11/100**

0 paid • 11 free

Page Views

**54**

[Open page views report](#)

## Recommended actions

Get 14x more impressions with Eventbrite Ads. [Learn more](#)

## Quick actions

📄 Attendees report

📄 Order form responses

📄 Sales report

## Sales by ticket type

Ticket type	Sold	Price
Monthly HAMMER Industry Members Connect	11/100	free

[Go to the Sales by ticket type report](#)

## Recent Orders

Order #	Name	Quantity	Ticket type	Price	Date
<a href="#">11497693913</a>	Martin	1	Monthly HAMMER Industry Members Connect	\$0.00	01/16/2025
<a href="#">11483297113</a>	Paul B	1	Monthly HAMMER Industry Members Connect	\$0.00	01/14/2025
<a href="#">11481660973</a>	Lori B	1	Monthly HAMMER Industry Members Connect	\$0.00	01/14/2025
<a href="#">11480372573</a>	MARZ	1	Monthly HAMMER Industry Members Connect	\$0.00	01/14/2025
<a href="#">11480355843</a>	Tirth P	1	Monthly HAMMER Industry Members Connect	\$0.00	01/14/2025

[Go to all Orders](#)

← Back to events

### Monthly Virtual Connect for NSF-HAMMER-ERC Industry Members

📅 Fri, Jan 17, 2025, 12:00 PM

Event ended [View](#)

Steps

- ✓ Build event page
- ✓ Add tickets
- ✓ Publish

Dashboard

Order Options

Marketing

Manage Attendees

Reporting

**Thank you!**

Questions?

[Bandar.3@osu.edu](mailto:Bandar.3@osu.edu)

614-893-6053