

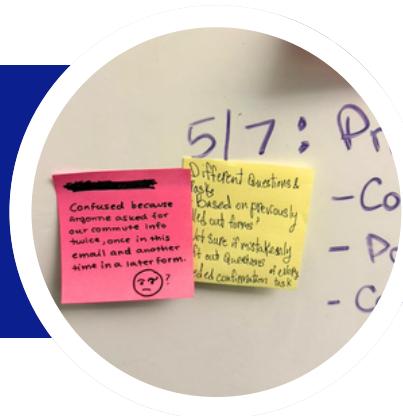
# CELS STUDENT ONBOARDING



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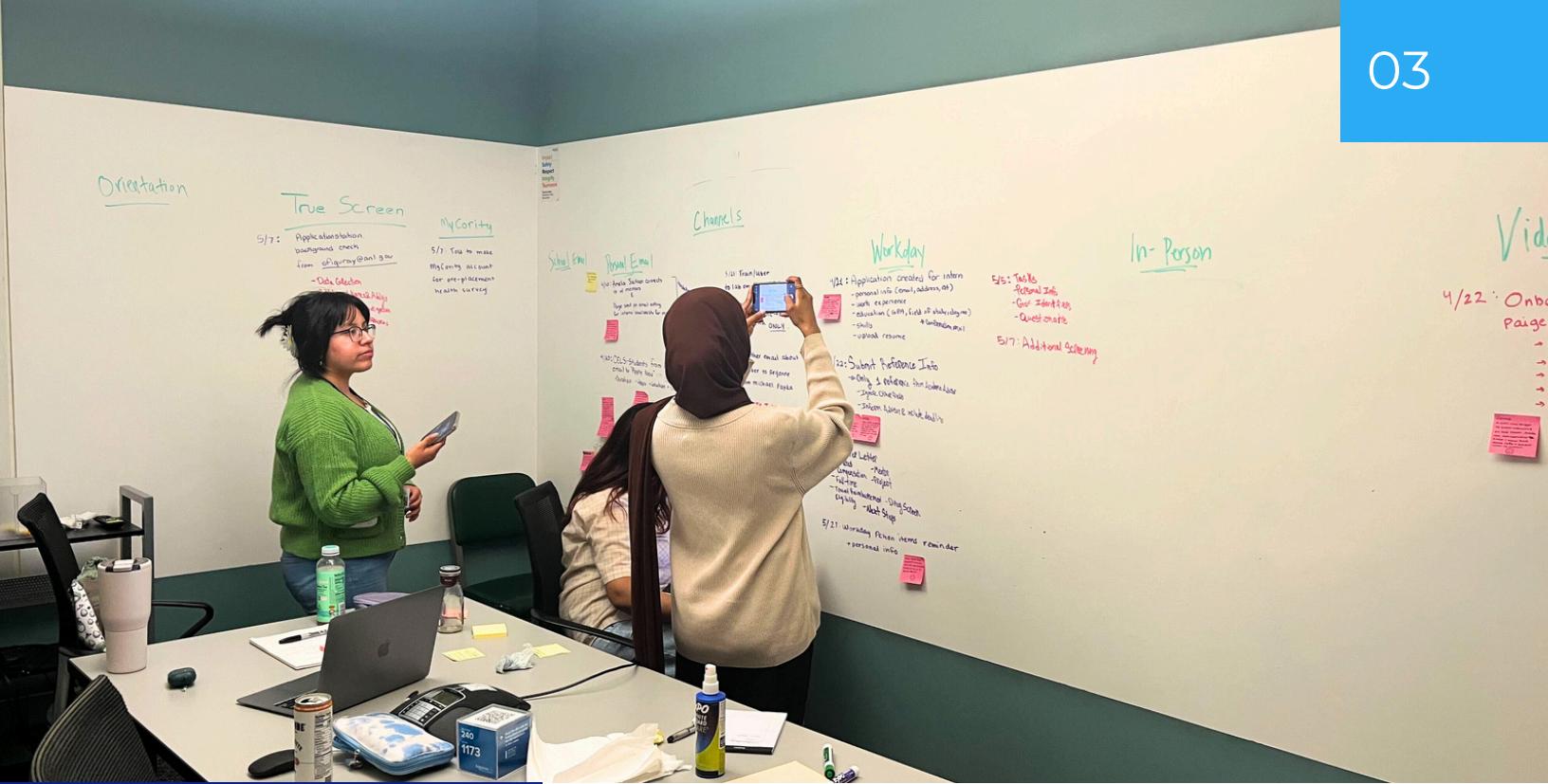
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# EXECUTIVE SUMMARY

Each summer, students—from undergraduates to PhD candidates—collaborate with CELS staff on research projects that contribute to advancing scientific computing.

For many, their first interaction with Argonne begins with the hiring process. However, this process can be complex and confusing. Students often receive multiple emails with links to unfamiliar applications and are given little context about the forms they are required to complete.

To address these challenges, we developed a website that guides students through the onboarding process from their perspective. This resource is designed to provide clear explanations, contextual information, and a more streamlined experience for incoming students.

The following pages of the report covers our research and approach.

# INTRODUCTION

Every year, the CELS directorate brings in a cohort of students to participate in hands-on research across a range of scientific computing disciplines. These students, who vary in academic level and background, join teams working on real-world challenges. Their time at Argonne is often their first exposure to the workflows, systems, and culture of a national laboratory.

Despite the significance of their contributions, many students face early challenges navigating Argonne's hiring and onboarding processes. The initial experience typically involves a series of emails directing them to unfamiliar systems and forms, with limited context about why specific information is required or how the overall process works. This lack of clarity can create confusion and hinder a smooth start to their internship experience.

In response to these issues, this report investigates the current onboarding experience from the student perspective. It presents findings gathered through firsthand observations and feedback, and proposes a solution aimed at improving the clarity and accessibility of onboarding materials.

Specifically, we recommend the development of a student-facing website that clearly explains the process, expectations, and resources available—ultimately enhancing the student experience and reducing the burden on administrative staff.

A list of strengths and weaknesses of the current onboarding process.

Strengths	Weaknesses
<ul style="list-style-type: none"><li>• Emails for new hires had information and helpful pdfs with info about being an employee.</li><li>• Argonne representatives were always straight-forward, professional, and responsive.</li><li>• Everyone was communicative about all tasks and expectations.</li><li>• Argonne was understanding when tasks were taking longer or had issues.</li></ul>	<ul style="list-style-type: none"><li>• No mention of separate orientations for students at New Hire meeting. There was major confusion on which meeting to attend.</li><li>• New courses had to be searched in workday but this information was not given, sometimes tasks previously would be in different places.</li><li>• We were asked to give email addresses multiple times for different steps of the process, sometimes information got lost.</li><li>• Some information was left out of emails and required constant check ins through email.</li><li>• Disconnected relationship between TMS and workday courses.</li><li>• Confused on which websites to use, had so many websites with no clarification on what each was going to be used for. could be helpful to create chart or diagram.</li></ul>



# METHODOLOGIES

## USER RESEARCH METHODS

- User Interviews
- User Surveys
- Diary Studies
- Brainstorming HMW

We employed four distinct user research methods to identify pain points and uncover opportunities for enhancing the onboarding process.

Beginning with a project plan, we strategically selected fellow students as participants for interviews and surveys. Additionally, we conducted a diary study and facilitated a structured brainstorming session to gather insights and generate actionable ideas.

# USER INTERVIEWS

*Conducting one-on-one conversations with current or recent interns to understand their onboarding experience and challenges.*

To understand the onboarding experiences and challenges of interns at Argonne, user interviews were conducted with five recent or current summer interns. Participants were selected based on their recent start dates to ensure detailed and fresh recollections. Each interview, lasting no more than 20 minutes, was conducted either in person or virtually via Zoom, with sessions recorded (with consent) and notes taken for accuracy.

An interview script guided discussions on key aspects of the onboarding process, including new hire steps, tools and websites used, communication channels, and engagement with Argonne amenities. Participants also reflected on the clarity, order, and accessibility of the information provided.

While most interviews proceeded smoothly, some participants were initially hesitant or brief in their responses. Follow-up questions were used to encourage deeper insights, enabling the team to capture meaningful details about frustrations, needs, and mental models related to the onboarding experience.

## **INTERVIEWEES:**

- Ayesha Shafiuddin, *Returning Undergraduate Intern*
- Athena Rachel Angara, *Returning Undergraduate Intern*
- Diego Roa, *Returning Graduate Intern and Foreign National*
- Ishaan Desai, *Undergraduate Intern*
- Eero Dunham, *New Undergraduate Intern*

**“There's a lot of information on that day, kind of overwhelming. I don't think I absorbed all of it. I don't remember them talking about it most of them.”**

**“A lot of my accounts weren't unlocked, so the first week was pretty rough, so no access.”**

**“There's a lot of text in the emails and acronyms I didn't know, and a lot of like websites I was unfamiliar with.”**

**“More straightforward map would be better, fitness center was not easy. you need a badge to access fitness center.”**

# USER SURVEYS

*Collecting structured feedback from recent hires to identify usability issues, gaps in communication, and areas of confusion in the onboarding experience.*

To complement the qualitative insights from user interviews, a survey was developed to gather structured feedback from a broader group of recent Argonne interns and new hires.

Using Google Forms, the survey was distributed to nine individuals via Argonne email, with seven completing it after follow-ups and an extended deadline. The survey questions were based on the interview script to ensure consistency and reinforce emerging themes.

The survey covered five key topics: onboarding steps and processes, website usability, communication channels, amenities and opportunities, and overall reflections.

Participants rated aspects such as task order, website clarity (e.g., Workday, MyANL, Dash), and the effectiveness of communication tools (e.g., email, Slack, Teams). Scaled rating questions (e.g., 1 = Very Easy to 5 = Very Difficult) helped identify patterns, while open-ended questions provided detailed context for reported issues.

To improve data quality, all questions were made mandatory after initial incomplete responses. Despite the small sample size, the survey results aligned with interview findings, enabling the team to triangulate recurring challenges, validate trends, and identify pain points in onboarding processes, system usability, and communication clarity. This structured approach provided actionable insights for improving the onboarding experience at Argonne.

# SAMPLE QUESTIONS

1      2      3      4      5

Very Easy

Very Difficult

1a. If you found this website difficult, can you describe what made this site difficult to use? \*

I found it somewhat frustrating that I would complete certain items and then they would basically disappear -- either that the item would no longer appear at all, or it would appear but with no way to view what I'd filled out. It made it more difficult to keep track of what steps had/hadn't been completed.

## Process Tasks

We identified these as possible hiring steps you may have taken. Which of these did you complete? \*

- Submit Application & References
- Drug Testing: Typically QuestDiagnostics
- Background Screening: TrueScreen
- Health Survey: Typically MyCority
- Onboarding Meeting: Brief Introduction to Mentors & Next Steps
- Method of Travel & Residency During Employment
- Online trainings: Day of / Before Orientation
- Badge Pick-Up: Can Schedule an Appointment



## DIARY STUDY

*Documenting personal onboarding experiences in real time to identify pain points and emotional responses.*

At the start of the internship, each team member kept a personal journal to record their own onboarding experience as it happened. This method served as a foundational step in our research, allowing us to capture our emotions and thoughts while completing tasks.

Entries were free-written and varied, but all interns documented what steps they completed, how each task was performed, and how they felt throughout the process. This reflective practice helped us identify pain points and moments of clarity from a first-person perspective.

The diary notes were later referenced when developing the interview and survey questions. These reflections were placed in a collaborative FigmaJam board to visualize the experience during onboarding.



# BRAINSTORMING

## “HOW MIGHT WE” ACTIVITY

*Turning pain points into actionable opportunities through team synthesis and guided reframing.*

After collecting data from diary studies, user interviews, and surveys, the team held a collaborative “How Might We...” (HMW) activity to transform key insights into opportunity areas. The goal was to reframe observed onboarding challenges into actionable solutions.

Insights from users included difficulties accessing required applications, confusing website navigation, overwhelming email communication, and a lack of clarity in onboarding instructions. These themes were developed into HMW prompts such as:

- How might we give students access to essential tools before orientation?
- How might we condense and organize onboarding information across emails?
- How might we reduce the number of platforms students need to visit?
- How might we provide better guidance on using hiring applications?

This activity helped surface potential solutions such as offering step-by-step walkthroughs for applications, implementing a centralized checklist, and introducing MyANL as a hub for onboarding tasks.

# HMW PROCESS

HMW:

How Might We?

- HMW give access to students prior to orientation?

- HMW condense and organize email information?

- HMW reduce the number of locations, sites that people have to go to?

- HMW provide guidance on how to use hiring applications?

- tell them how to get access
- push out to tech support to get access & give limited access to certain areas
- have email to get from just one person
- staff could translate emails they send to students
- providing a checklist

- inform students if there is a site
- give step by step instructions

# FINDINGS

- Student Personas
- Coded Interview Transcripts
- Customer Journey Map
- Collaborating with AI

# COMMON PAINPOINTS



**Access Issues**  
Limited or delayed access to accounts and tools



**Platform Confusion**  
Too many tools without clear guidance or purpose



**University vs. Argonne**  
Confusion or delays on school-related forms



**Lack of Clear Guidance**  
No checklist or visual roadmap for tasks



**Unclear Support Channels**  
Confusion around who to contact for help



**Email Overload**  
Important info buried in overwhelming emails

# STUDENT PERSONAS

Based on findings from user interviews, we identified three common intern groups working at Argonne: new undergraduate students, returning undergraduate students, and new graduate students.

By analyzing shared traits across each category, we developed profiles for each student pertaining to their work and onboarding experience here at Argonne.

These profiles offer insights to support needs, professional goals, pain points, and more.



**Paula Brown**  
Argonne Research Aide

Age: 19  
Location: Chicago, IL  
School: University of Chicago

"Steps were difficult, there was a lot of text and acronyms in the emails and websites. Argonne has so many confusing platforms."

**Who is Paula?**  
Paula is an undergraduate student at UChicago with a major in Computer Science and a minor in Data Science. She will be going into her final year of university. This is her first time working at a national lab.

**Relationship with Argonne**  
Excited to be part of cutting-edge research, she's had difficulty understanding the steps required during the onboarding process, such as setting up accounts, navigating internal websites, and figuring out who to reach out to for help.

**Argonne start date:** 6/2/2025  
**Work schedule:** Hybrid

**Goals**

- Getting her first professional experience
- Maximizing her time at Argonne by making connections
- Getting real-world experience in Data Science
- Getting exposure to fields within Data Science

**Needs**

- Tutorials for onboarding websites
- Guidance when she gets stuck as she onboards into her first company
- Information about Argonne groups to join, to make more connections there

**Behavior**

Checking Emails	Progress Bar (Low)
Punctuality	Progress Bar (Low)
Self-Advocacy	Progress Bar (Low)
Organizing tasks	Progress Bar (Low)

**Onboarding Experience**

- Most effective form of communication: Slack
- Contact for help during onboarding: Mentor/Help Line
- Comfort with Argonne new hire process: 😕

**Pain Points & Challenges**

- Trouble accessing some websites prior to start date
- Emails from Argonne got lost in school email; missed tasks
- Confusion with the I-9 and Beneficiary forms

## RETURNING UNDERGRADUATE



**Jacob Duke**  
Argonne Research Aide

Age: 21  
Location: Chicago, IL  
School: University of Chicago

"The process has been revised since then in a positive way."

**Who is Jacob?**  
Jacob is a returning undergraduate student at the University of Chicago. He is majoring in Computer Science and a minor in Data Science. This is not his first time interning at Argonne.

**Relationship with Argonne**  
Jacob is returning after being recommended by his previous mentor, Albus Dumbledore, to work in the CELS division.

**Argonne start date:** 6/2/2025  
**Work schedule:** Hybrid

**Goals**

- Getting most of their experience in one field
- Learn the specifics and advance knowledge
- Building and strengthening connections
- Do meaningful work

**Needs**

- Higher connections in his field
- Specialized tools and applications
- Some Argonne groups and forgotten info
- Recruiters

**Behavior**

Checking Emails	Progress Bar (Low)
Punctuality	Progress Bar (Low)
Self-Advocacy	Progress Bar (Low)
Organizing tasks	Progress Bar (Low)

**Onboarding Experience**

- Most effective form of communication: Email
- Contact for help during onboarding: Mentor/Supervisor
- Comfort with Argonne new hire process: 🤔

**Pain Points & Challenges**

- Trouble accessing some websites prior to start date
- Emails from Argonne got lost in school email; missed tasks
- No information on hotel amenities such as microwave and fridge access.

## NEW GRADUATE



**Abe Lincoln**  
Argonne Research Aide

Age: 26  
Location: Springfield, IL  
School: University of Illinois Urbana-Champaign

"Happy to be here, I've heard of a lot of good things about Argonne, but so far it's been so disorganized. I'm especially nervous since I'll be entering the workforce for good soon."

**Who is Abe?**  
Abe is a new graduate hired as a research aide majoring in Environmental Engineering. He'll be living on campus at Argonne for the duration of this internship.

**Relationship with Argonne**  
He's working in the EVS (Environmental Systems) directorate, researching sustainable water systems. He already knows the lab culture and expectations but noted that some onboarding tasks changed since last year.

**Argonne start date:** 5/26/2025  
**Work schedule:** WFH

**Goals**

- Now graduating at UIUC, he's focused on applying his skills in environmental modeling to real world applications.
- Finding the missing pieces needed for his profession.
- Maximizing networking to help with his career.

**Needs**

- Values independent learning but appreciates having clear resources to guide him through institutional systems.
- Needs new hire information to be easily accessible and findable because he's a busy man.

**Behavior**

Checking Emails	Progress Bar (Low)
Punctuality	Progress Bar (Low)
Self-Advocacy	Progress Bar (Low)
Organizing tasks	Progress Bar (Low)

**Onboarding Experience**

- Most effective form of communication: Email
- Contact for help during onboarding: CELS Student team
- Comfort with Argonne new hire process: 😊

**Pain Points & Challenges**

- Too many specific instructions for certain training and onboarding tasks that were an inconvenience
- Confusion/miscommunication about housing amenities and room

A first time intern at Argonne, Paula Brown is eager to gain hands-on experience, yet found the onboarding process confusing. Digital tools are her strength, but she needs clear guidance to support her journey.

Jacob is a returning intern in his undergraduate CS program. He's confident and proactive, with great organization and communication skills. He remains well-connected to the lab's employees. Though it is his second year, he still has trouble accessing necessary services.

Abe is our newly graduated intern working in environmental engineering. He's familiar with the tech world, but struggles with getting adjusted to Argonne. He's independent but needs clearer access to resources.

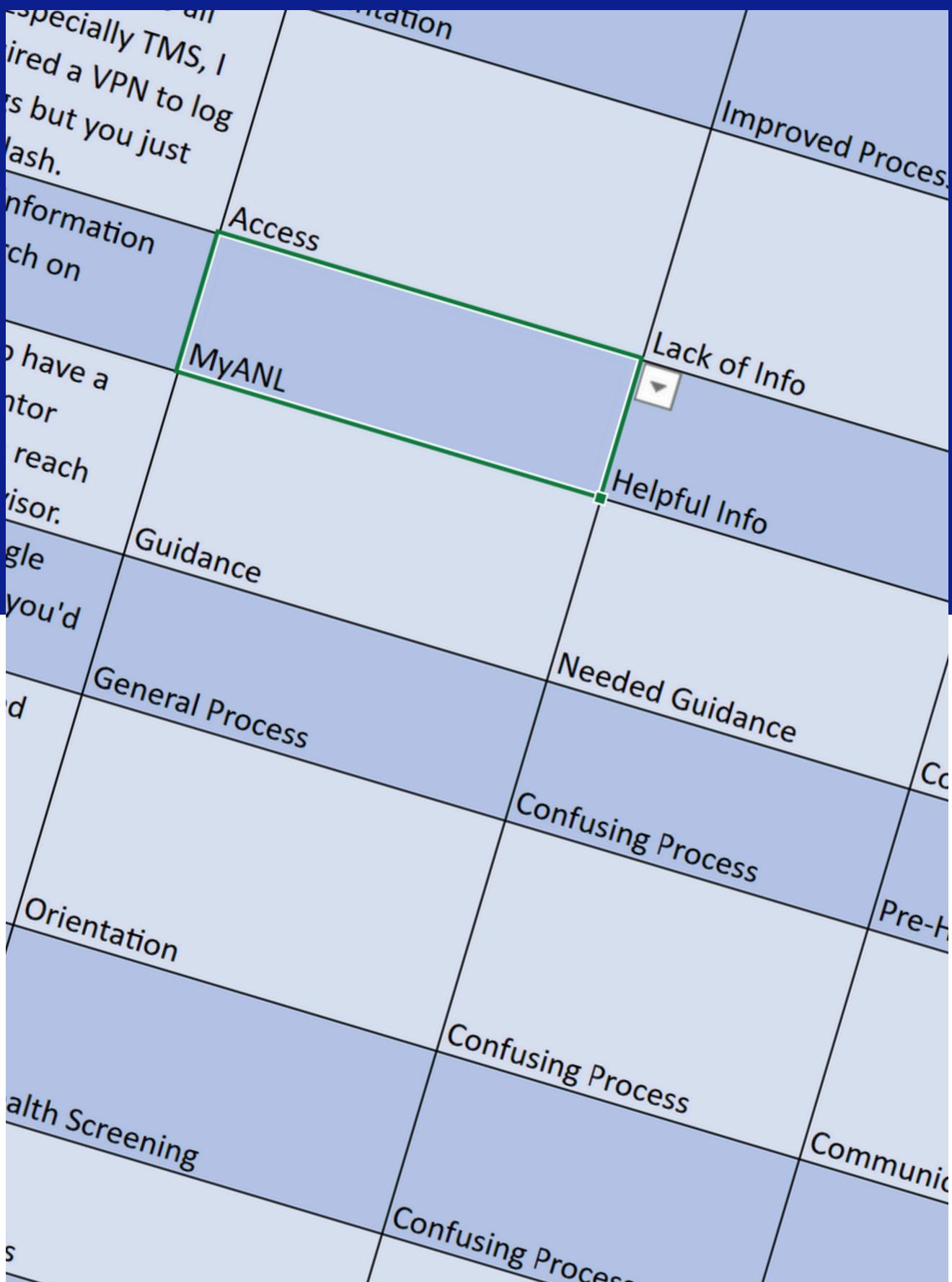
# CODING

We collected qualitative data from intern interviews and distilled individual quotes into core insights. Each quote was then categorized using a four-part coding system:

- Context identifies the specific phase of the onboarding process being referenced.
- Code classifies the quote as a reflection of a struggle or an improvement, accompanied by a brief descriptor.
- Theme organizes quotes into broader conceptual buckets to guide content development for the intern website.
- Sentiment captures the emotional tone conveyed, helping us understand how interns felt during various touchpoints.

This approach allows us to trace patterns, identify pain points, and connect feedback to actionable design elements.

## QUALITATIVE CODING



# CODING WITH AI

## Chat with Argo



Certainly! Here's an expanded version of your description, providing more detail and clarity about the process and its purpose:

In our analysis, we systematically extracted quotes from each interview and distilled them into concise, actionable key points. This process allowed us to focus on the most relevant and impactful insights shared by participants. To ensure a structured and meaningful interpretation of the data, each quote was then categorized into four distinct dimensions: **context, code, theme, and sentiment**. These dimensions served as a framework for organizing and analyzing the qualitative data, ultimately enabling us to draw deeper insights and identify patterns.

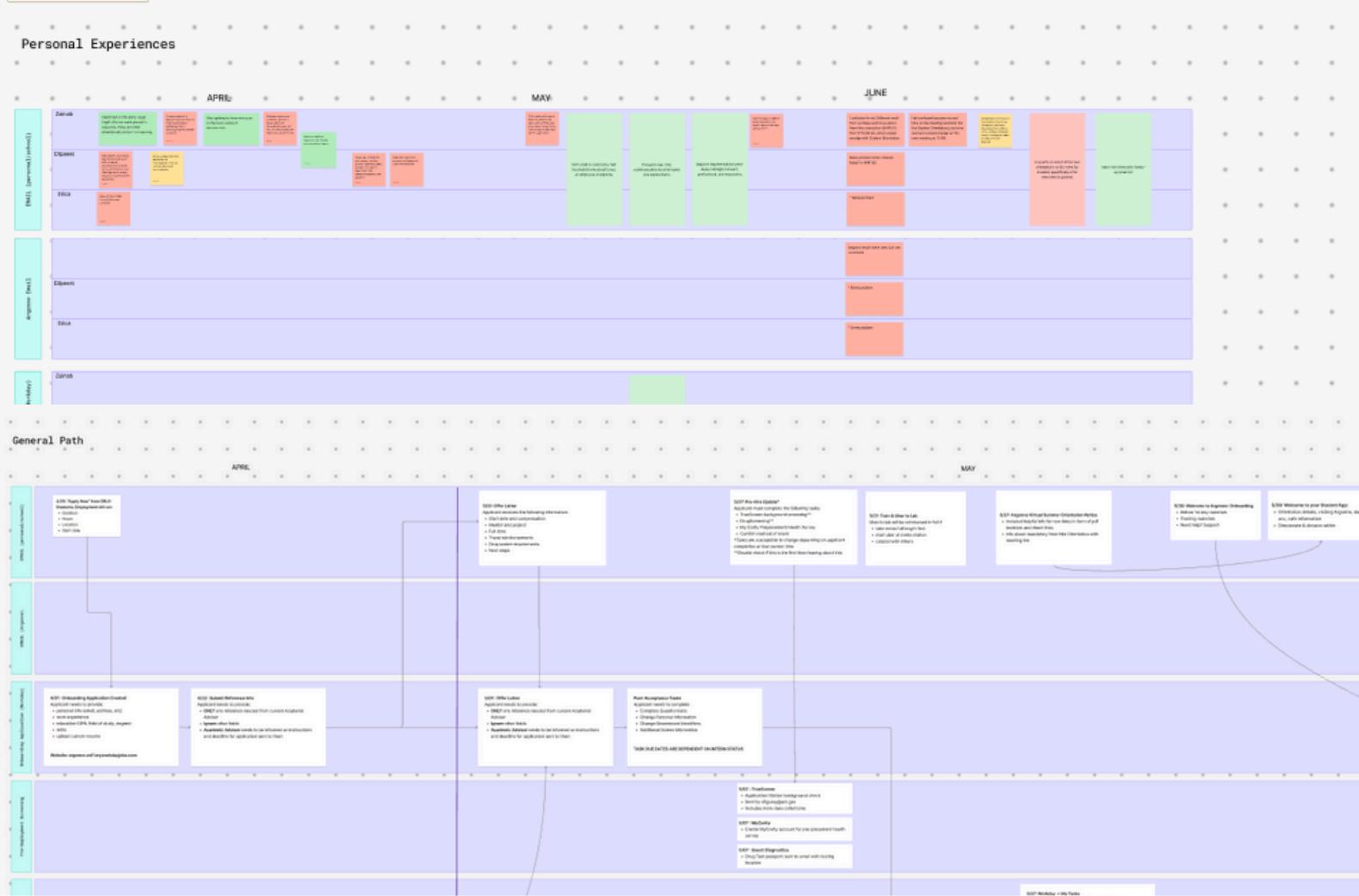
### 1. Context

The **context** dimension provides critical information about the specific part of the onboarding process to which each quote pertains. By identifying the stage or aspect of onboarding (e.g., pre-arrival preparation, first-day orientation, ongoing training, or integration into the

As part of an experimental comparison, we explored AI effectiveness in coding interview data. We guided the AI using our code and the interviews AI to steer the AI's output.

The AI lacked in several areas compared to our coded table. The output and code were disorganized; they struggled to create categories with a clear purpose without overlapping. Only a portion of the quotes were incorporated, leaving out large sections of valuable data. Quotes were not properly linked to interviewees, often misattributing or merging multiple voices into one. Additionally, hallucinated quotes that were not found in any interviews were included.

# CUSTOMER JOURNEY MAP



Insights from our diary study informed our journey map, built using swim lines to visualize communication across channels--highlighting touchpoints, gaps, and overlaps in the intern experience. This map became a reference for shaping interviews, code logic, and organizing the site's framework.

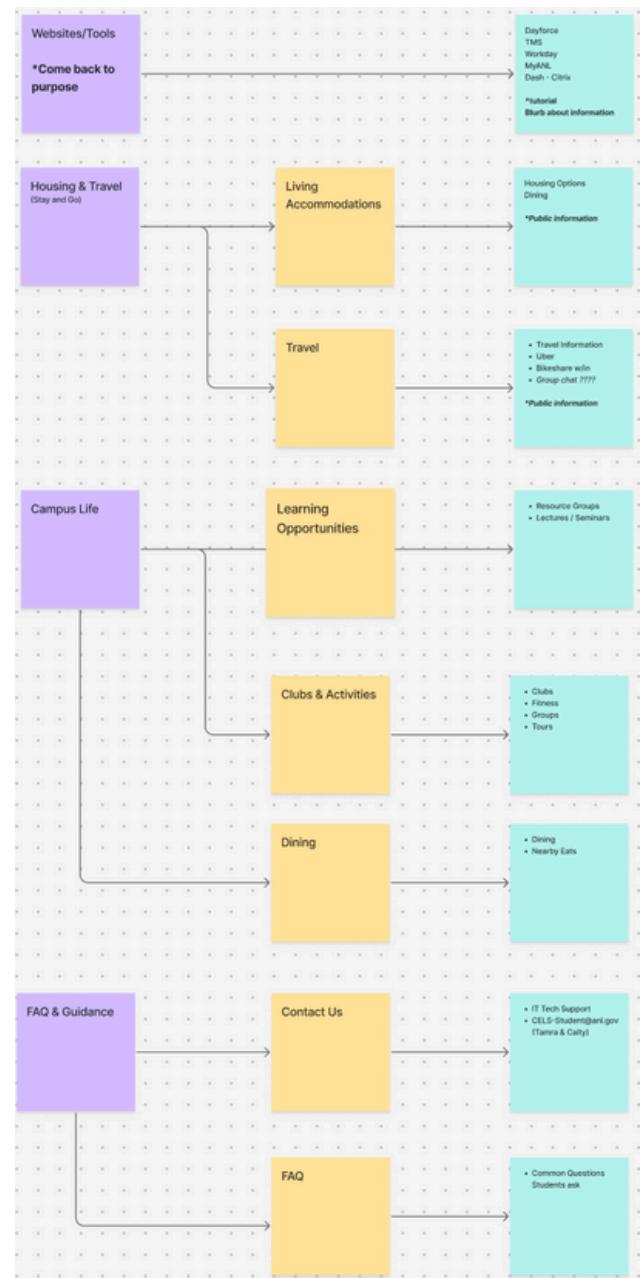
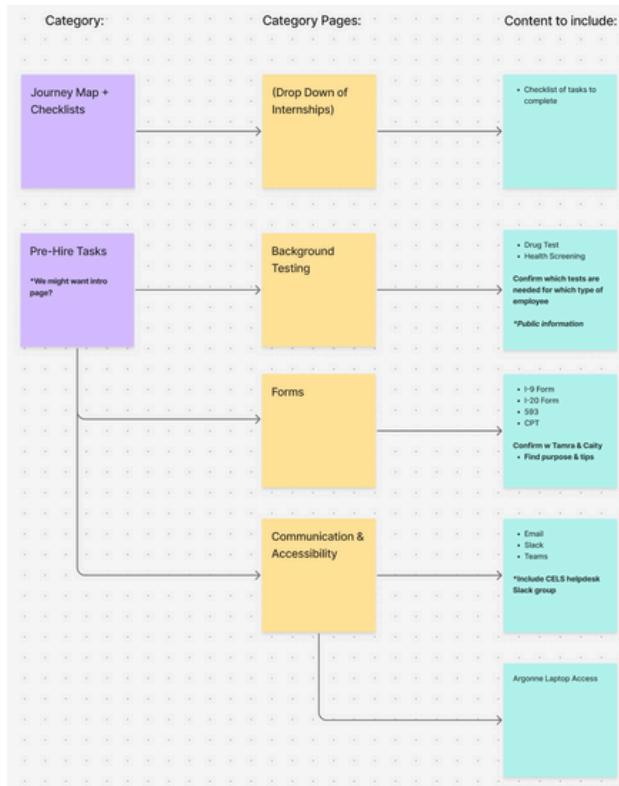
Alongside the map, we created a personal experience map to document our emotional reactions, struggles, and successes. Using color-coded attributes, we marked strengths, uncertainties, and pain points.

# IMPROVING COMMUNICATION EXPERIENCE

- Information architecture
- Card sorting
- Content
- Prototyping

# INFORMATION ARCHITECTURE & CARD SORTING

To design a clear structure for the Student Onboarding site, we utilized a card-sorting exercise in Figma. Each card represented essential onboarding content, such as pre-hire tasks and FAQs. We collaboratively grouped the cards into categories and arranged them hierarchically to reflect the onboarding process from preparation to ongoing engagement. Arrows visualized relationships between main pages and subpages to link related information. This approach helped prioritize content, reduce redundancy, and create a navigational structure that aligns with the actual student onboarding journey.



# CONTENT WRITING

The content development process for the Student Onboarding site was guided by both user needs and organizational requirements. Building on the outcomes of our card-sorting exercise, we identified the key pages and topics that would best support new hires throughout their onboarding journey. To ensure accuracy and completeness, we referred to the CELS Student Program team's internal logistics and workflows, incorporating the steps and resources they provide to students. We also reviewed the existing CELS Student Onboarding WordPress site and the main Argonne website, extracting relevant information while reorganizing it into a more coherent and user-friendly format. Recognizing that the previous site's content was scattered and difficult to navigate, we restructured and rewrote the information to emphasize clarity, consistency, and accessibility. Importantly, our writing prioritized addressing areas of confusion frequently identified in our user research, ensuring that the final content highlights critical information students need most during the onboarding process.

- ... you prepare to arrive on-site, there are a few ...
- ## Site-Pass and Badge Pickup
- If you will be commuting to Argonne regularly, you will need a
- \*\*Complete Training Module SEC 100:\*\* Ensure you have completed
  - \*\*Register for a Badge Appointment:\*\* Once your training is
  - \*\*Required Documents:\*\* A REAL ID compliant identification
- ✓ ## Forgot Your Badge?
- If you ever forget your badge, visit the \*\*Welcome Center\*\*
- \*\*Location:\*\*  
9700 S Cass Ave Building 952 & 951, Lemont, IL 60439
- \*\*Hours of Operation:\*\*  
Monday–Friday, 6:30 AM – 5 PM
- ✓ ## Building & Site Map
- To help you navigate the Argonne campus, please refer to
- Communication!!!

# PROTOTYPING

We used Figma to design the site's layout, creating wireframes that reflected the information architecture developed during our card-sorting activity. This allowed us to visually plan page structures, test navigation patterns, and collaborate effectively on design decisions before development began.



**Home Page**

Wireframes:

MacBoo... MacBoo... MacBoo...

Design:

MacBoo... MacBoo... MacBoo... MacBoo... MacBoo... MacBoo...

**Subpages**

MacBoo...



The image shows the Argonne National Laboratory logo at the top left, featuring the word "Argonne" in a serif font next to a stylized multi-colored hexagonal graphic. To the right is a horizontal navigation bar with links for "HOME", "ABOUT", and "CONTACT". Below the header is a large, semi-transparent white box containing the text "WELCOME TO ARGONNE" and "Your guide to onboarding, setup, and success at Argonne." The background of the slide is a photograph of a diverse group of people, mostly young adults, standing together indoors.



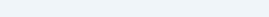
**WELCOME TO ARGONNE**

Your guide to onboarding, setup, and success at Argonne.

A template for an onboarding checklist. It features a large title 'ONBOARDING CHECKLIST' at the top, followed by a descriptive paragraph about staying organized. Below is a 'DOWNLOAD LIST' button, and on the right is a list of ten tasks, each preceded by a green checkmark.

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 U.S. DEPARTMENT  
of ENERGY

 UChicago  
Argonne, LLC

# NEXT STEPS

- Create video step-by-step tutorials for major Argonne applications and websites
- Add more onboarding and Argonne-related content, referencing the existing CELS Student WordPress site.
- Add more onboarding info that pertains to other specific groups of student hires.
- Guide other Argonne divisions on using this site as a template for their divisions' onboarding.
- Update changing information on the site as needed
- Include a calendar that is consistently updated with important events.
- Add more components in the code to improve site visuals.
- Collaborate further with CELS Student Program team and refer to user research to include for more common FAQs.

# ACKNOWLEDGEMENTS

We would like to extend our sincere gratitude to everyone who contributed to the success of this project. A special thank you to Beth and Paige, our mentors, for their invaluable guidance and support throughout this process. Rachel played a crucial role in teaching us about accessibility, refining our content writing, helping us stay organized, and providing continuous encouragement. We are deeply thankful to Caity, Tamra, and Lindsey from the CELS Student Program Team for sharing their expertise on the onboarding process and offering insights to enhance the site's content. Our appreciation also goes to Kyle (and Pickle) for helping us resolve persistent technical issues, and to Haritha Som and John O'Connor for their thoughtful advice on user experience and design, which shaped our approach. We also thank all the interviewees and survey respondents whose feedback provided the foundation for improving the student onboarding experience. Lastly, a special thanks to everyone else we had the pleasure of speaking to during our time at Argonne.