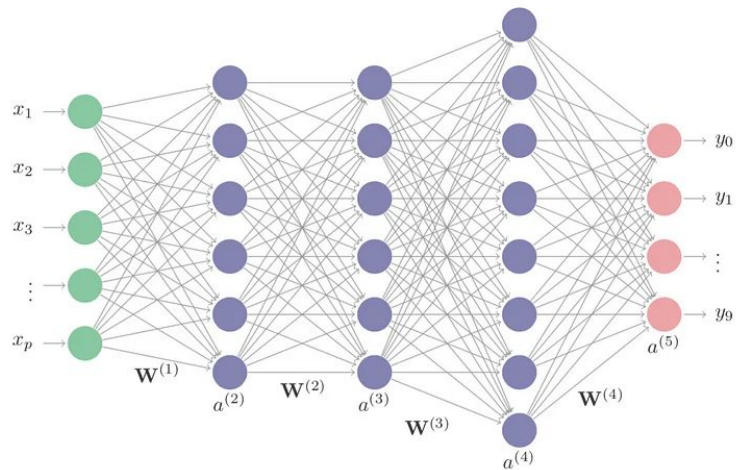


SRO All Staff Meeting

June 21, 2023





SRO All Staff Meeting

AGENDA

12:00 Box Lunch

12:30 SRO Business Update

Stephanie Chardoul

12:50 New Staff Welcome!

Nicole Kirgis

1:00 Generative AI in Survey Research

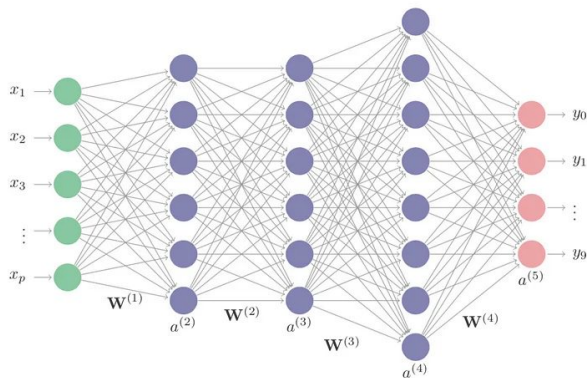
Introduction: Gregg Peterson

Guest speaker: Scott Crawford

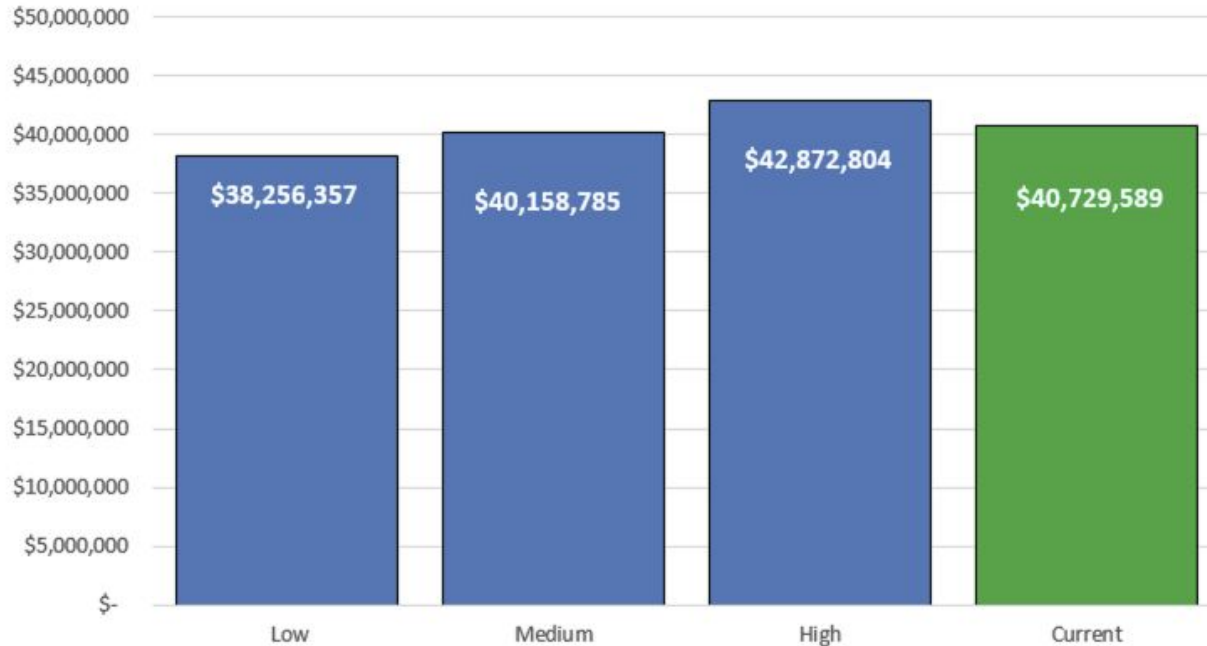
SRO All Staff Meeting

June 21, 2023

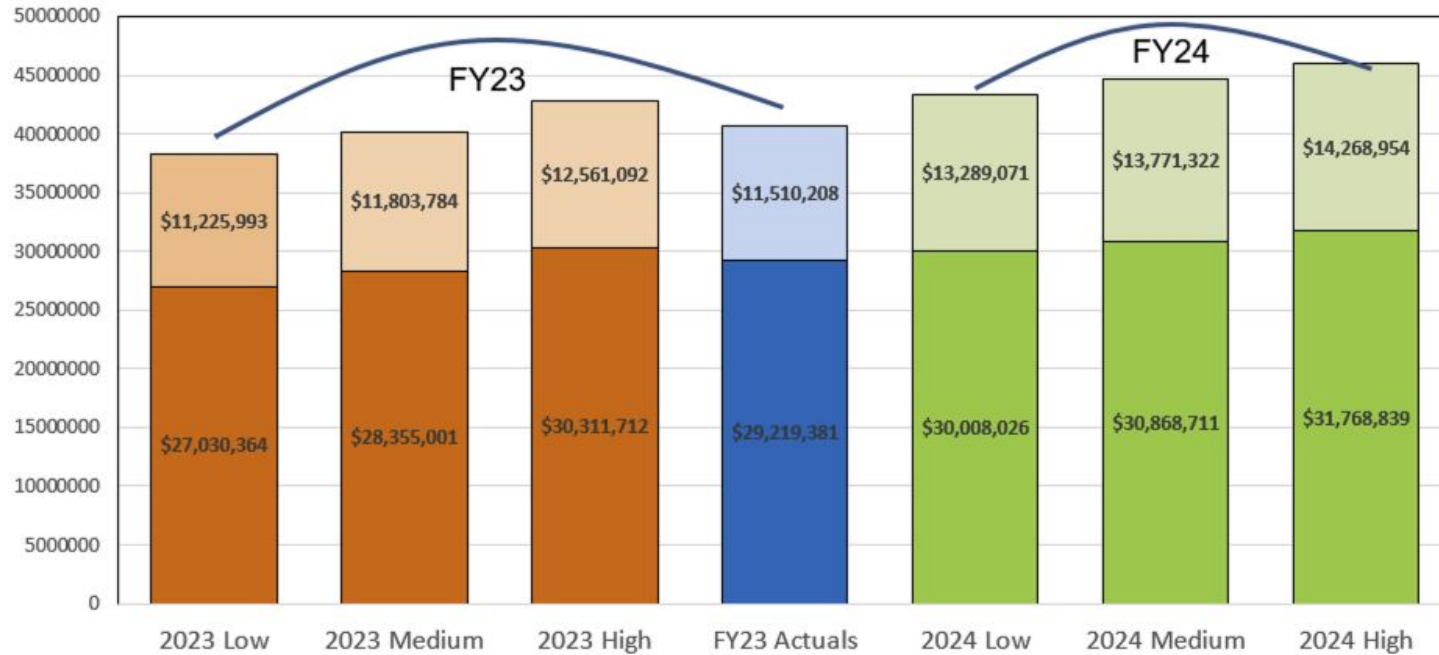
BUSINESS UPDATE



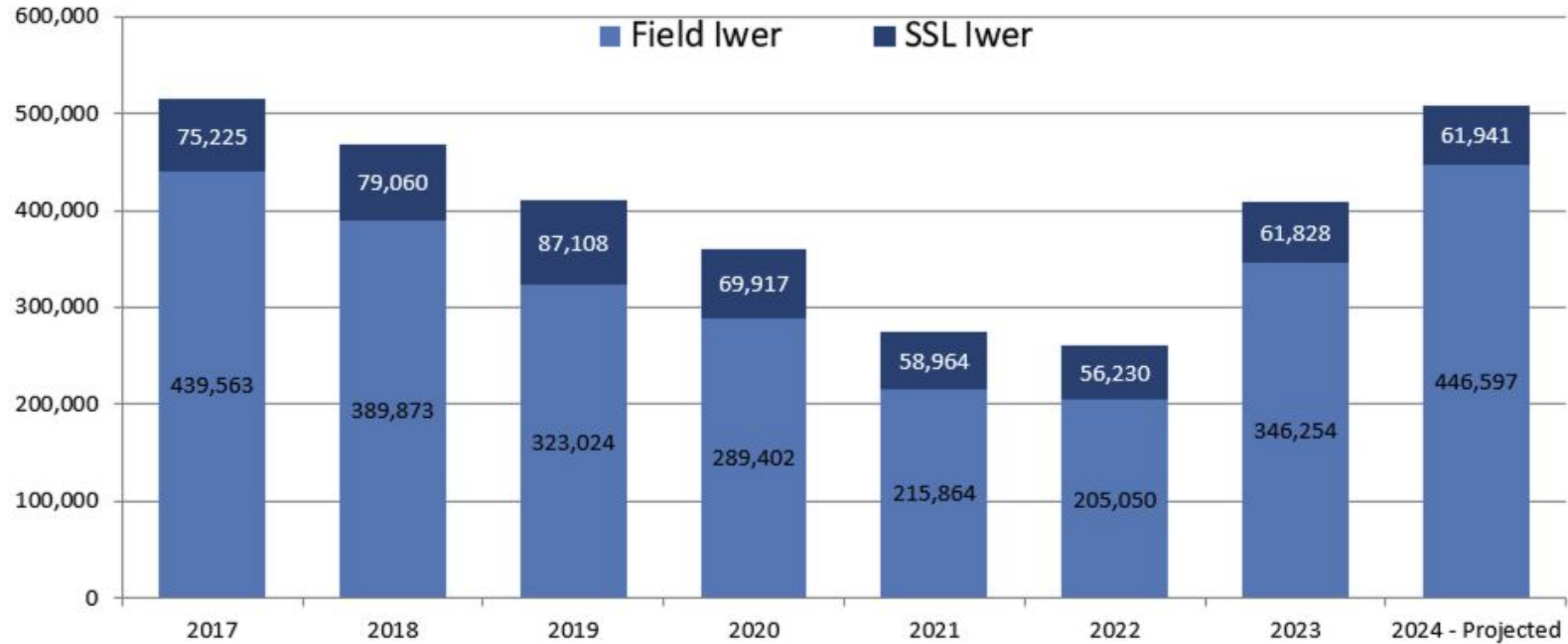
Current (FY23) revenue compared to submitted budgets



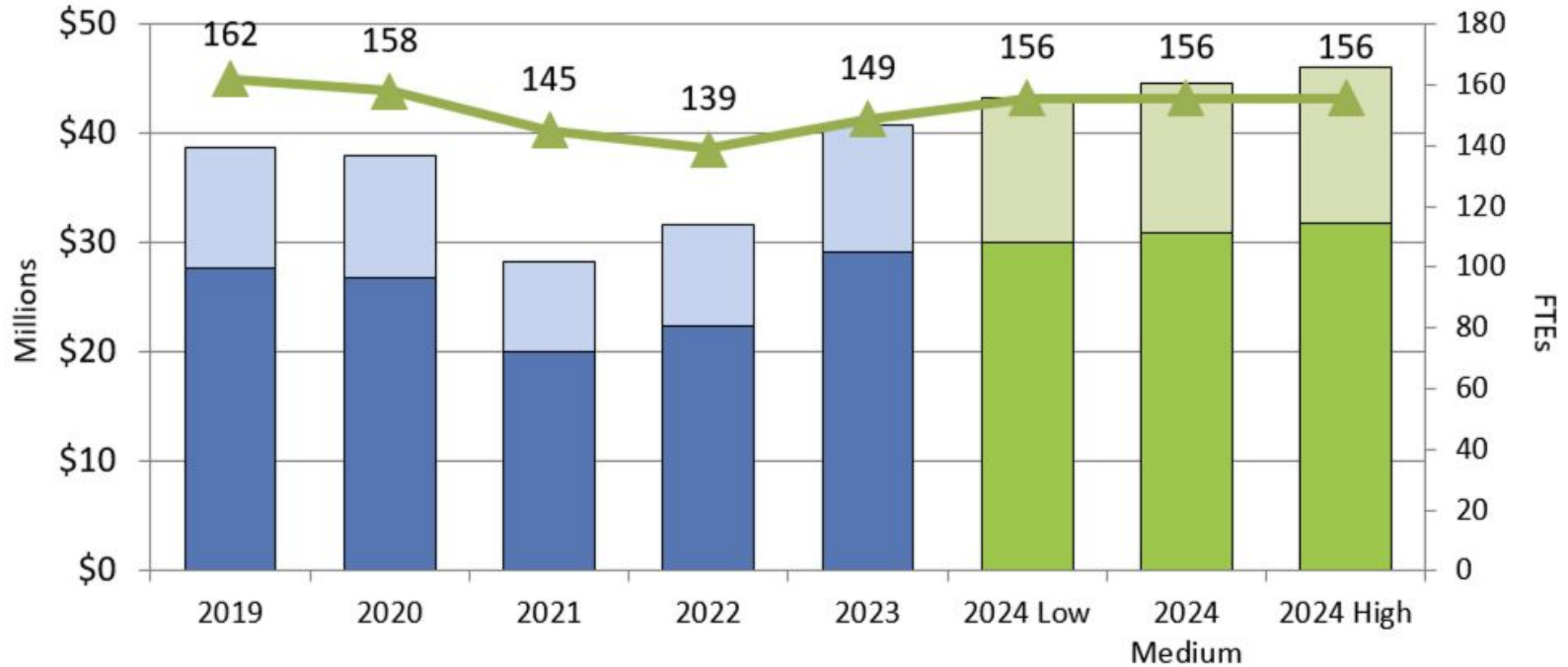
Budgets across years comparison



Interviewer Hours



Sponsored Volume to Staff Counts



SRO Operating (Overhead) Budget

Department	FY23 Budget FTEs	FY23 Budget Total	FY24 Budget FTEs	FY24 Budget Total
Data Collection Operations	6.2	829,443	6.4	885,438
Director's Office	5.2	904,360	5.2	951,225
Financial Services	7.7	830,766	7.0	871,353
Project Design and Management	2.6	413,315	2.2	357,545
DMSS	6.9	922,487	5.8	849,527
Technical Services	3.6	614,249	3.9	694,053
Initiatives/Development Projects	1.9	249,000	2.2	300,506
Subtotal	34.1	4,763,621	32.7	4,909,648

SRO International Support	1.2	257,076	0.7	185,491
Total	35	5,020,697.0	33	5,095,138.1

Key Initiatives/Development Projects for FY24

- ★ Blaise CTT maintenance and upgrades
- ★ Blaise 5 version testing
- ★ SurveyTrak migration to newest version of Sql Anywhere (v.17)
- ★ Interviewer QC technical system
 - Extend QC base/general system maintenance and enhancement
 - Automate QC reports/Integrate into Report Portal
 - QC reports enhancements/improvements
 - Synchronizing OLIVE components
 - Data Dictionary for OLIVE 4
- ★ SSL Auto Scheduler interface development
- ★ DCO systems support
- ★ MSMS development support - reliability and performance

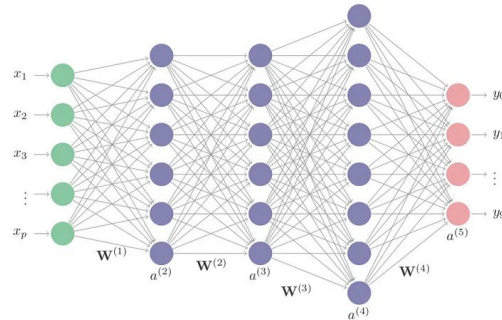
Other important stuff...

- ★ SRC Leadership update
- ★ CBS (Stats Netherlands) visit
- ★ SRO representation at conferences/meetings
- ★ Workload and taking care of ourselves

SRO All Staff Meeting

June 21, 2023

WELCOME NEW COLLEAGUES



Lorraine Bird

she / her / hers

**Survey Specialist Intermediate
DCO**

- ★ Grew up in a small town in Maine.
- ★ Worked for ISR / DCO for over 20 years.
- ★ A Garth Brooks & Taylor Swift Fan

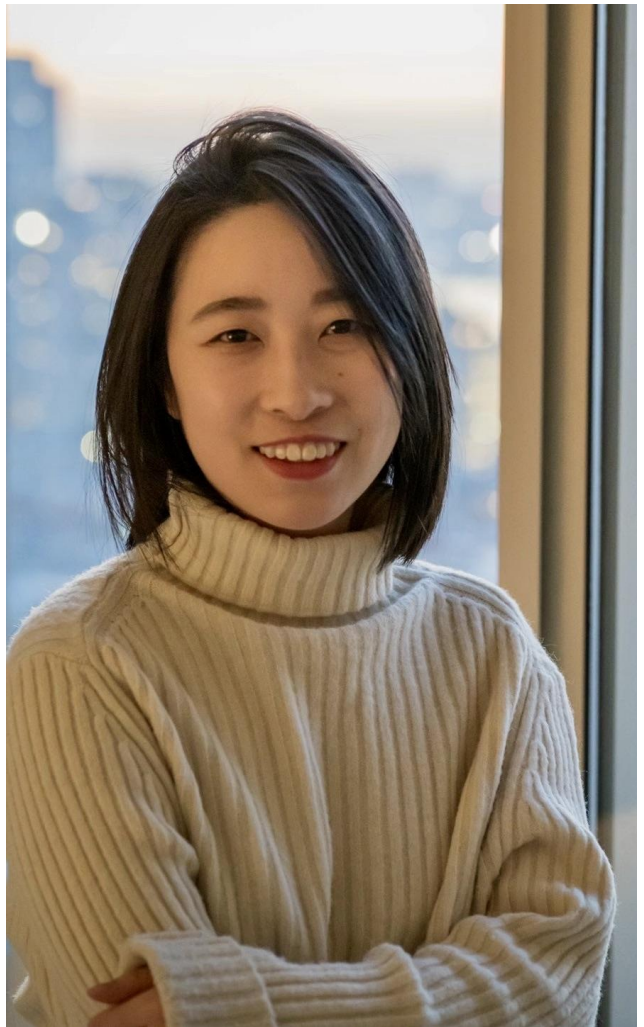


Ruyi Chen

she / her / hers

**Statistician Intermediate
DMSS**

- ★ Have lived in four different regions of the U.S.
- ★ Enjoy going to the gym for group fitness classes
- ★ Like to use the camera to record my life



Austin De Spirito

he / him / his

Survey Specialist Associate
PDMG

- ★ I am an avid rock climber
- ★ My favorite television show is HBO's Succession
- ★ I am a connoisseur of instant coffee -- currently drinking NESCAFÉ® Clásico™



Ed Green

he / him / his

**Data Manager Intermediate
TSG**

- ★ I have 3 kids: Julian (11), Elliott (8), and Zoe (3)
- ★ Grew up in Texas, lived in Colorado for a few years, moved to Ann Arbor for graduate school
- ★ Enjoy reading, movies, spicy food, live music, and playing the guitar



Mat Luna

he / him / his

Survey Specialist Associate
PDMG

- ★ Enjoy cooking
- ★ Starting to sew jeans



Mark Nathin

he / him / his

**Survey Specialist Intermediate
PDMG**

- ★ Grew up around Boston, Massachusetts
- ★ Favorite sport to play is skiing that I started at 2 years old
- ★ Went to the Indy 500 race last month for the first time
- ★ Other hobbies include hiking, eating italian food, following the financial markets, and playing cards



Tim Prand

he / him / his

**Survey Specialist Senior
PDMG**

- ★ 30+ years of Market Research-- telephone interviewing to leading programming and DP teams.
- ★ Lived in Ohio my whole life, currently in Perrysburg. Nice long commute.
- ★ Enjoy traveling, hiking, cycling, motorcycling, and racing cars.
- ★ Completed my 1st Spartan Race In June 2023



Ji Qi

he / him / his

**Statistician Lead
DMSS**

- ★ I got my master's degree in Survey and Data Science from ISR in 2015
- ★ Statistician at Michigan Medicine prior to joining SRO
- ★ Enjoy traveling, swimming, tennis, and trying new restaurants

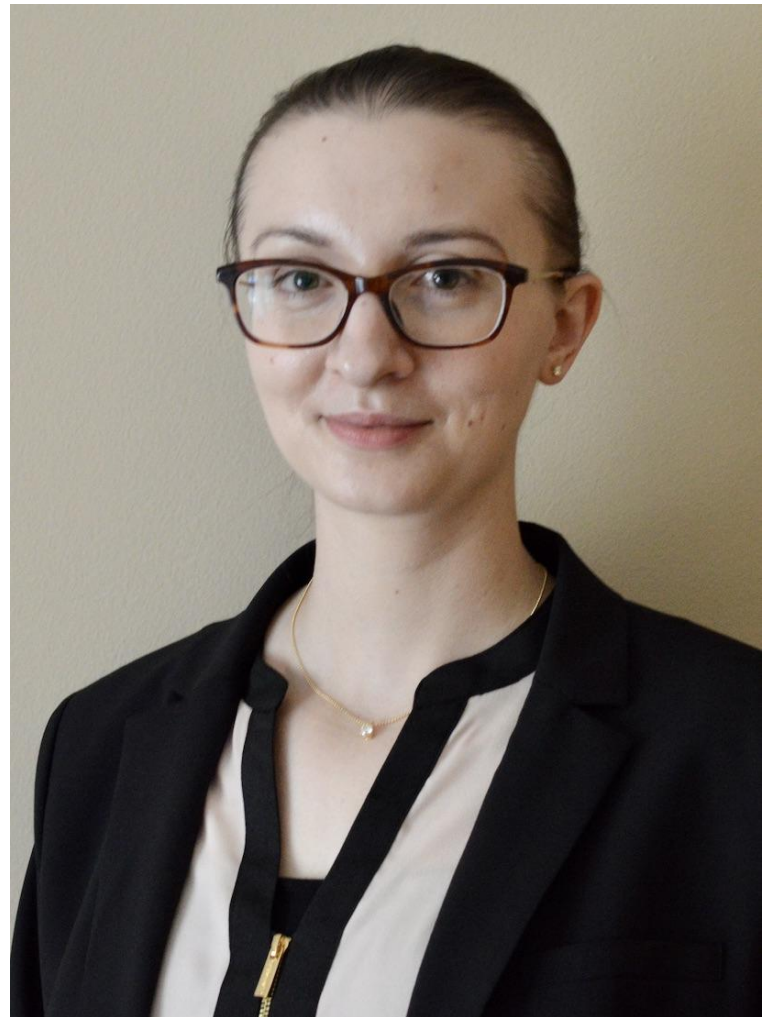


Brianna Sabol

she / her / hers

Data Manager Associate
TSG

- ★ I hiked part of the Appalachian Trail
- ★ I have a rescue cat, named Sophia
- ★ My go-to show is The Office



Jaleesa Rosario Turner

she / her / hers

**Survey Specialist Intermediate
DCO**



- ★ Born in Iceland and lived in Japan before coming to America
- ★ Has a permanent section of the outside mural at the Ann Arbor District Library, Downtown
- ★ First research paper on social networking, race/ethnicity and creator equity just published in this years CSCW journal



Alex Warju

she / her / hers

**Survey Specialist Intermediate
DCO**

- ★ Originally from Michigan, but have lived in Mississippi, Florida, and Utah over the past 5 years
- ★ Hiked my first mountain in October
- ★ Enjoy doing variant sudokus



Recruitment In Progress

PDMG: Survey Specialist Associates

DCO: Production Associate Managers

TSG: Director

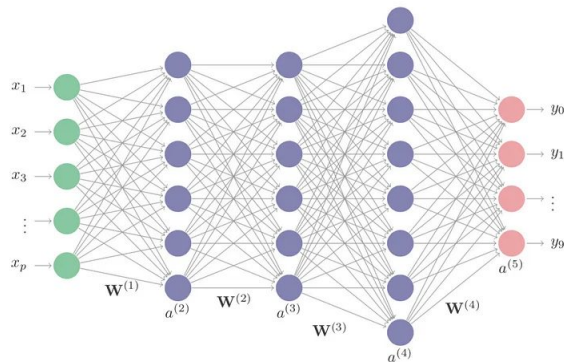
FSG: Financial Analyst Intermediate

Director's Office: Administrative Assistant Intermediate

SRO All Staff Meeting

June 21, 2023

AI



What is Artificial Intelligence or AI?

- ❑ Systems or machines capable of performing tasks or activities previously assumed to require *human* cognition or intelligence
- ❑ **Narrow AI:** Perform specific, defined tasks (e.g. face recognition; automated Industry-occupation coding)
- ❑ **General AI:** Broad, independent, intellectual thought and decision making (Still science fiction?!)

Other terms associated with AI

- ❑ **Machine learning:** Learning and improving by ingesting and then identifying the relationships between LOTS of “training” data
- ❑ **Neural network:** A multi-dimensional statistical model, where each dimension or layer consists of numerous interconnected nodes (“neurons”) with each connection having a weight that is adjusted during the learning process
- ❑ **Generative AI:** AI that creates *new content* (images, speech, music, **text**) based on learned patterns
- ❑ **Large Language models:** Large predictive neural networks developed via machine learning focussed on understanding and producing language and text



e.g.  **ChatGPT** (Model: GPT-4)

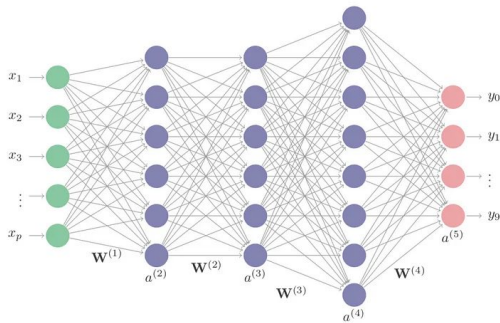
AI at Michigan

- ❑ ITS cautions about use of Institutional data with 3rd party AI tools
<https://safecomputing.umich.edu/protect-the-u/safely-use-sensitive-data/AI-and-UM-Data>
- ❑ “Exploring the Use of Deep Learning Neural Networks to Improve Dementia Detection: Automating Coding of the Clock-Drawing Test”
Mengyau Hu, Assistant Research Scientist, Survey Research Center, University of Michigan
- ❑ U-M Committee to explore applications of generative AI
<https://record.umich.edu/articles/committee-to-explore-applications-of-generative-ai-at-u-m/>
- ❑ My experience: Lucid explanations, “hallucinated” sources

SRO All Staff Meeting

June 21, 2023

AI in Survey Operations



Scott Crawford,
Founder, Chief Vision
Officer, SoundRocket

AI in Survey Operations

Presentation to the
Survey Research Center's Survey Research Operations Unit

Prepared By | Scott D. Crawford
Prepared On | June 21, 2023



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Some ChatGPT Created Jokes . . .

Why don't survey researchers ever play hide and seek with statisticians and programmers?

Because good luck hiding when someone can extrapolate your location from incomplete data, and the other will just code an AI to find you!

Some ChatGPT Created Jokes . . .

Here's a thought: If we ever need to raise money, we can start a reality show.

We'll call it 'Lost in Translation: The Survey Manager Edition'. It's about a brave survey manager trying to explain customer needs to a programmer using only statistical jargon.

Some ChatGPT Created Jokes . . .

You know you're a survey researcher when someone says, 'I made a survey over the weekend.'

And you have to resist the urge to ask, “Oh, so you've also mastered the art of time travel to squeeze several weeks' worth of work into two days?”

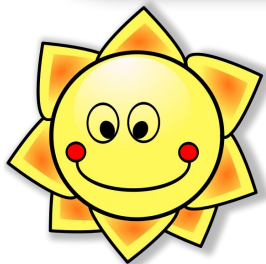
The Plan

Shadows First:



Let's address some of the dirty parts first.

Sunshine Second:



Then let's have fun with the opportunities that may lie ahead.

Let's get some stuff out of the way . . .

Data Privacy (Your own and your customers data)

- <https://openai.com/policies/privacy-policy>
- Read carefully—I am now lawyer, but it is my understanding that:
 - You are giving OpenAI permission to use what you enter to improve its services, train its model, etc. (You can, however, opt-out of having your data used to train, but in doing so, you are also asking them to purge your chat history after 30 days.)
 - You are giving OpenAI permission to aggregate or de-identify your **personal information** and use it for various purposes.

Data Use (with/without Permission)

- Was permission granted to use the training data?
- How do you use and acknowledge its use?

Accuracy

- Hallucinations
 - See the end of my slides for an interesting exploration of its hallucinations across ChatGPT versions (3.5 v 4.0 v 4.0 with Web Access)
- General inaccuracies—depends on what it was trained on . . .

Let's get some stuff out of the way . . .

Bias

- AI models have been shown to have some significant bias, introduced either through their algorithms or through the data they are trained on.
 - **Buolamwini, J., & Gebru, T. (2018, January). Gender shades: Intersectional accuracy disparities in commercial gender classification. In Conference on fairness, accountability and transparency (pp. 77-91). PMLR.**
 - Compared two existing data sources that are known to have a bias towards white males with a new balanced (on race and gender) training dataset.
 - Results:
 - Males were better classified than females (by 8.1% to 20.6% difference in error rate)
 - Lighter faces were better classified than darker faces (by a 11.8% to 19.2% difference in error rate)
 - Darker female faces were the worst (20.8-34.7% error rate)
 - Two services performed nearly perfect on lighter male faces (0.0% and 0.3% error rate)
 - One service performed best on darker male faces (0.7% error rate)
 - Improving the data does help, but does not resolve the problem—there seems to be some bias in the algorithm itself.

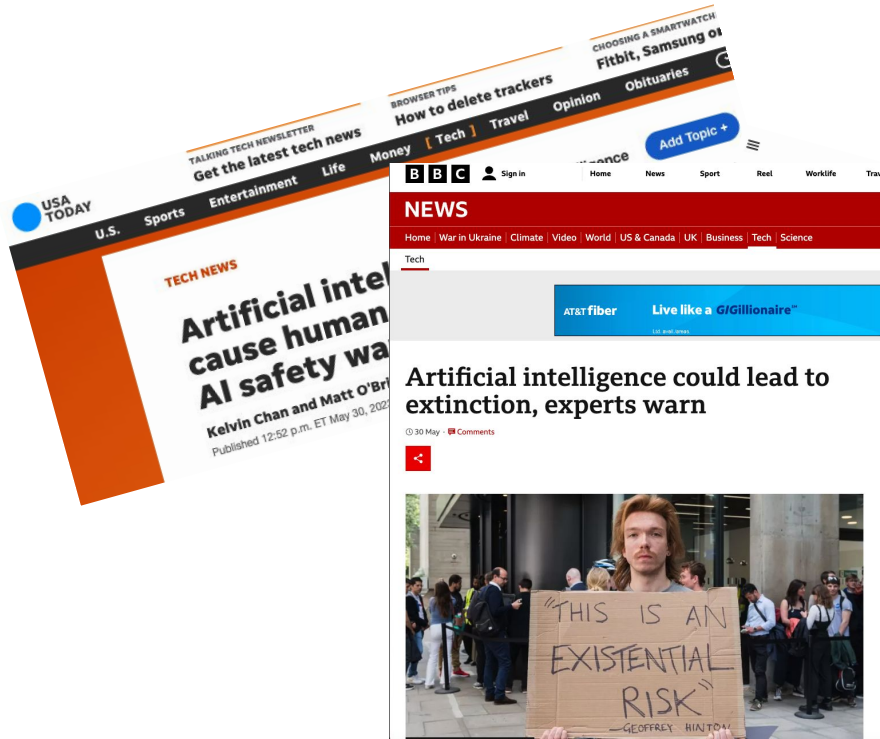
Let's get some stuff out of the way . . .

Misuse, Misunderstanding, and Hype

- Steven A. Schwartz - Manhattan Attorney

<https://www.nytimes.com/2023/06/08/nyregion/lawyer-chatgpt-sanctions.html>

- Submitted a 10-page brief, citing numerous court decisions.
- The opposing side requested copies of the decisions because they could not find them.
- Mr. Schwartz had to explain that he had ChatGPT write the brief, and apparently all of the court decisions were hallucinations.
- He claimed he did not realize that was possible and thought that it was a “super search engine” with a greater reach than his normal resources.



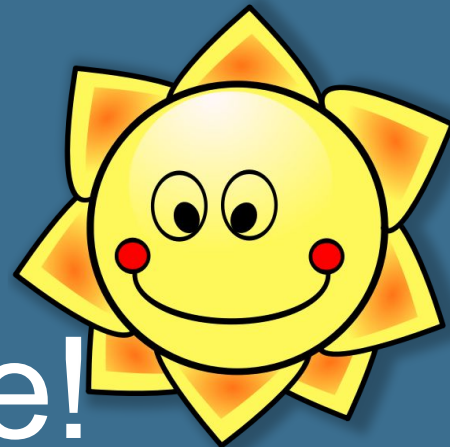
Statement on AI Risk

A group of experts, and some non-expert but public figures, signed a simple release put out by the Center for AI Safety, which reads (in its entirety):

Mitigating the risk of extinction from AI should be a global priority alongside other societal-scale risks such as pandemics and nuclear war.

—<https://www.safe.ai/statement-on-ai-risk>

Now for the sunshine!



Effective prompting.

An example of questionnaire design.

Operational efficiencies.

Other impacts.

What is Prompt Engineering?

Originally a term used to define **a process involved in designing and training generative models.**

Prompt engineering is beginning to be used to define the process of interacting with the model that fits optimally with how it was trained.

A prompt engineer is a questionnaire writer for AI!

Let's ask ChatGPT to help us write a question for a health survey—

Let's play in ChatGPT-4!

Write a question about health.

Write a question about general health.

Write a categorical question about general health.

Write a categorical question about general health that I can use in an upcoming survey.

Please recommend a question or questions that we could add to a survey to ask about incoming college students' current health.

How to optimize your prompts

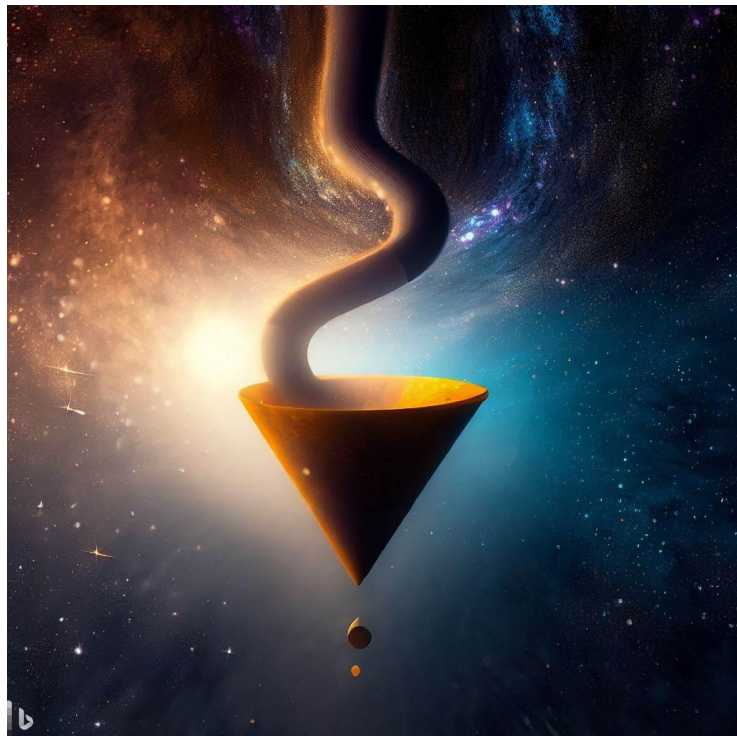


Image Courtesy of Bing Image Creator

Be
A
Funnel

Scott's 10 Steps to Prompting AI for the Social Sciences

1. Universe context framing (general)
2. Local context framing (detail)
3. Your role—broad context (general)
4. Your role—specific context (detail)
5. ChatGPT's Role (general)
6. The Request (detail)
7. Things to Consider (the neck—more detail)
(may be tone requests, style, or may provide instructions on how to evaluate the request)
8. Give ChatGPT the Authority to Ask You Questions (more neck)
9. Onward! The order to go (out the end of the funnel)
10. Evaluate the results

Building a Prompt in ChatGPT in the Social Sciences

I work for a large research university that employs experts in social sciences . . .

1. **Universe context framing**
2. Local context framing
3. Your role—broad context
4. Your role—specific context
5. ChatGPT's role
6. The Request
7. Things to consider
8. Give ChatGPT the Authority to Ask You Questions
9. Onward (Run!)
10. Evaluate



Building a Prompt in ChatGPT in the Social Sciences

I work for a large research university that employs experts in social sciences
and I work at the University's survey center where we support the
design and implementation of social science survey research.

1. Universe context framing
2. **Local context framing**
3. Your role—broad context
4. Your role—specific context
5. ChatGPT's role
6. The Request
7. Things to consider
8. Give ChatGPT the Authority to Ask You Questions
9. Onward (Run!)
10. Evaluate



Building a Prompt in ChatGPT in the Social Sciences

I work for a large research university that employs experts in social sciences and I work at the University's survey center where we support the design and implementation of social science survey research. **I am a survey manager tasked with assisting our customers in the design and implementation of a study funded by the U.S. National Institutes of Health.**

1. Universe context framing
2. Local context framing
3. **Your role—broad context**
4. Your role—specific context
5. ChatGPT's role
6. The Request
7. Things to consider
8. Give ChatGPT the Authority to Ask You Questions
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10. Evaluate



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I work for a large research university that employs experts in social sciences and I work at the University's survey center where we support the design and implementation of social science survey research. I am a survey manager tasked with assisting our customers in the design and implementation of a study funded by the U.S. National Institutes of Health. **I am currently working on a large study of college student health in the U.S. that will be fielded to incoming first-year students.**

1. Universe context framing
2. Local context framing
3. Your role—broad context
4. **Your role—specific context**
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1. Universe context framing
2. Local context framing
3. Your role—broad context
4. Your role—specific context
5. **ChatGPT's role**
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Please recommend a question or questions that we could add to a survey to ask about incoming college students' current health. Consider the questions' impact on data quality, being careful to avoid any major source of survey error. Consider that the question will be asked in a quantitative web-based self-administered survey.

1. Universe context framing
2. Local context framing
3. Your role—broad context
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1. Universe context framing
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3. Your role—broad context
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7. **Things to consider**
8. Give ChatGPT the Authority to Ask You Questions
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PAUSE . . . consider what documentation you already have.

I work for a large research university that employs experts in social sciences and I work at the University's survey center where we support the design and implementation of social science survey research. I am a survey manager tasked with assisting our customers in the design and implementation of a study funded by the U.S. National Institutes of Health. I am currently working on a large study of college student health in the U.S. that will be fielded to incoming first-year students. I would like you to act as if you were a Survey Methodologist on our project, and answer any questions that we may have. Please recommend a question or questions that we could add to a survey to ask about incoming college students' current health. Consider the questions' impact on data quality, being careful to avoid any major source of survey error. Consider that the question will be asked in a quantitative web-based self-administered survey. **Consider that one goal for this question will be to provide data that could be compared to other national data asked of adults in the U.S. Consider that we would prefer to use one question, but if there is strong evidence to include multiple questions, you may recommend a multi-question option.**

Q by Q's!

Question by Question objectives
created for project specific
interviewer training.

We already write prompts for human interviewers. If you can write a question objective, you can very fully complete the “Things to consider” step.



Building a Prompt in ChatGPT in the Social Sciences

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1. Universe context framing
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3. Your role—broad context
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Building a Prompt in ChatGPT in the Social Sciences

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1. Universe context framing
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Let's give it a try!

The final prompt:

I work for a large research university that employs experts in social sciences and I work at the University's survey center where we support the design and implementation of social science survey research. I am a survey manager tasked with assisting our customers in the design and implementation of a study funded by the U.S. National Institutes of Health. I am currently working on a large study of college student health in the U.S. that will be fielded to incoming first-year students. I would like you to act as if you were a Survey Methodologist on our project, and answer any questions that we may have. Please recommend a question or questions that we could add to a survey to ask about incoming college students' current health. Consider the questions' impact on data quality, being careful to avoid any major source of survey error. Consider that the question will be asked in a quantitative web-based self-administered survey. Consider that one goal for this question will be to provide data that could be compared to other national data asked of adults in the U.S. Consider that we would prefer to use one question, but if there is strong evidence to include multiple questions, you may recommend a multi-question option. As you consider this request, before providing an answer, ask me any questions that you have to help you make the best recommendation possible. If you have multiple questions, ask one, then pause and wait for me to respond before asking the next. Once you have what you need, please recommend the question.

Building a Prompt in ChatGPT in the Social Sciences

The most important
step—**ALWAYS** evaluate
the response for accuracy,
output for accuracy,
relevancy, and usefulness!

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- 10. Evaluate**



Use in Survey Operations

What do you do in your daily work that:

- Takes a lot of time, but not a lot of skill?
- Can be done much more quickly via an edit than from scratch?
- Requires that you think creatively and consider alternatives.
- Requires some specialized skill that you may not have mastered.

Scott's Experience with ChatGPT & Python

I am not a programmer. But I have, at times when needed, self-taught some basic programming. (i.e. use of javascript, cold fusion, etc.)

I have never opened a book about Python.

Prompted ChatGPT to help me develop a set of specifications for a tool that will take a standard questionnaire specification and parse it out into a spreadsheet format (and then reverse that).

Scott's Experience with ChatGPT & Python

Took the specifications that we co-designed, and asked it to code the application into Python.

1. Asked it to help me install Python on my Mac.
2. Asked it to show me how to write a “Hello World” application and run it.
3. Asked it to build components of the Q-Spec Parsing application.
4. Asked it how to integrate the components.

This is still in progress, but with about 8-10 hours of time invested, I currently have a **fully functional Excel to Word specification conversion tool**.

A task that used to take 4-6 hours can now be done in about 1 minute.

Survey Management

Kick start building a work-breakdown structure for a study that you are tasked with overseeing. Ask ChatGPT to get you started with an initial draft:

I work for a large research university that employs experts in social sciences and I work at the University's survey center where we support the design and implementation of social science survey research. I am a survey manager tasked with coordinating the schedules for projects. I am currently working on a large study of college student health in the U.S. that will be fielded to incoming first-year students via a web-based survey. I would like you to act as if you were a senior project manager with a lot of experience in managing large studies, and answer any questions I may have about the management of this project. Please provide me with the key elements of a work breakdown structure for this project that I can use to build a schedule. With the WBS, please also provide a rough estimate of the amount of days we should initially establish for each item. Consider that the study will have questionnaire design, web survey programming, sample design, sampling, data collection at 100 institutions of higher education that are participating in the study. Consider that each institution will separately provide its list of students from which we will select the final sample. Consider that the data collection will include 5 email invitations and two telephone prompt reminders. Consider that the overall data collection should fit between February 1, 2024 and April 30, 2024. And consider that as deliverables, we will provide a final dataset, a methods report, and final copies of all study documents. As you consider this request, before providing an answer, ask me any questions that you have to help you make the best recommendation possible. If you have multiple questions, ask one, then pause and wait for me to respond before asking the next. Once you have what you need, please provide an initial work breakdown structure for me to work with. I would like the list in a table format with the left column being a sequential numeric value, one column for the task (with room for intended sub-tasks), one column for the number of days required for the task, and one column listing any contingencies.

Seq. No.	Task / Sub-task	Duration (Days)
1	Project Planning	10
	1.1 Define project objectives and scope	2
	1.2 Identify project team and define roles	1
	1.3 Develop project plan and schedule	4
	1.4 Hold a kickoff meeting	1
	1.5 Set up project management tools	2
2	Questionnaire Design	25
	2.1 Draft initial questionnaire	7
	2.2 Review and revise initial draft	7
	2.3 Pilot test questionnaire	7
	2.4 Finalize questionnaire	4
3	Web Survey Programming	20
	3.1 Program draft questionnaire into web survey	10
	3.2 Test and debug web survey	5
	3.3 Finalize web survey	5
4	Sample Design and Selection	15
	4.1 Design sampling methodology	7
	4.2 Coordinate with institutions for sample selection	8
5	Data Collection	45
	5.1 Initial email invitation	1
	5.2 Follow-up email invitations (4 more rounds)	16
	5.3 Telephone prompt reminders	14
	5.4 Data storage and preliminary check	14
6	Data Management	30
	6.1 Data cleaning	15
	6.2 Data coding	10
	6.3 Data transformation to SPSS	5
	Reporting and Documenting	15
	7.1 Prepare methods report	7
	7.2 Prepare final dataset and documents	8

Seq. No.	Task / Sub-task	Duration (Days)	Risks
1.0	Project Planning	10	Lack of resources, underestimation of time required
	1.1 Define project objectives and scope	2	
	1.2 Identify project team and define roles	1	
	1.3 Develop project plan and schedule	4	Delays in approval of the project plan
	1.4 Hold a kickoff meeting	1	
	1.5 Set up project management tools	2	
2.0	Questionnaire Design	25	Issues with the specificity or clarity of questions
	2.1 Draft initial questionnaire	7	
	2.2 Review and revise initial draft	7	Delay in feedback
	2.3 Pilot test questionnaire	7	Issues with test respondents or

Survey Management

Let's build out more detail with some additional features at Task 2.0. When you are following up from previous prompts, and you remain within the same session, you can keep your focus on Steps 6 and 7:

Thank you, so let's just focus in on the questionnaire design task now. Please generate a table with more detail for that task. Consider that I expect that we will need to pass the questionnaire drafts by our customer three times, and that each time, they will need 10 days to review. Then please also build in steps for conducting 5 cognitive interviews with people who match the target demographic for the study, to test sections of the questionnaire with them after the 1st customer review noted above. With those cognitive interviews, please plan for 2 weeks of prep time to develop the interview guide, and 2 weeks to recruit the participants. Present me with a table that is only for section 2.0 Questionnaire design with this detail added. If there is additional detail that you recommend, please add that as well.

Seq. No.	Task / Sub-task	Duration (Days)	Risks
2	Questionnaire Design	90	Issues with the specificity or clarity of questions
	2.1 Draft initial questionnaire	10	
	2.2 First customer review	10	Delay in feedback
	2.3 Revise questionnaire after first review	5	
	2.4 Cognitive Interview Prep	14	Difficulty in finding participants who match the target demographic
	2.5 Conduct cognitive interviews	5	Issues with participant scheduling or technology
	2.6 Analyze cognitive interviews and revise questionnaire	10	Complex feedback from cognitive interviews
	2.7 Second customer review	10	Delay in feedback
	2.8 Revise questionnaire after second review	5	
	2.9 Third customer review	10	Delay in feedback
	2.10 Finalize questionnaire	10	Last-minute changes or issues

Other Applications in Survey Research

A Virtual Research Assistant

- Bail, C. A. (2023, May 12). Can Generative AI Improve Social Science?.
<https://doi.org/10.31235/osf.io/rwtzs>
- Systematic extraction of certain elements from studies it is trained on for the purpose of a meta-analysis.
- Help social scientists acquire programming skills
- **Elicit.org** - The AI Research Assistant (helps with literature reviews, brainstorming, summarization, and text classification)
 - Built by a non-profit called Ought, which is funded through grants
 - Trained on 175 million papers
 - Allows you to upload your own PDF papers
- Predict social scientists will play a key role in resolving current limitations with generative AI.
 - Designing studies to evaluate.
 - Identifying variables and measures to track and include in models.
 - Extending current models through theory
- Pretest questionnaires to identify areas that may react to studies.

Other Applications in Survey Research

Report writing / drafting / editing.

- For original scientific writing, it is not there yet.
- I would definitely pass text through it to use as an editor.
- Consider the usefulness of a AI trained on survey methods writing or on summarizing study designs.
- I have used it to generate ideas for blog posts.
- **Must be acknowledged when used.**

Transcription and coding of audio and video recorded interviews.

- <https://aicontentfy.com/en/blog/chatgpt-and-future-of-transcription-services>

Other Applications in Survey Research

Questionnaire Augmentation or Tailoring

- GroupSolver.com Experience
- Automatic Augmentation of Online Surveys Using Conversational AI
 - Petronin, Pierre, "Automatic Augmentation of Online Surveys Using Conversational AI", Technical Disclosure Commons, (February 08, 2023) https://www.tdcommons.org/dpubs_series/5670
 - A “plug-in” technology that can be implemented within a standard quantitative survey when open end responses are captured to engage in prompting/deeper dive questions that are based on the response provided.

Other Applications in Survey Research

Open Text Coding (post data collection)

- **Gilardi, F., Alizadeh, M., & Kubli, M. (2023). Chatgpt outperforms crowd-workers for text-annotation tasks. arXiv preprint arXiv:2303.15056.**
 - Cheaper than MTurk (\$0.003 per annotation, about 20x cheaper than MTurk)
 - Better quality (as measured by intercoder agreement) than MTurk and trained annotators
- **Mellon, Jonathan and Bailey, Jack and Scott, Ralph and Breckwoldt, James and Miori, Marta, Does GPT-3 know what the Most Important Issue is? Using Large Language Models to Code Open-Text Social Survey Responses At Scale (December 22, 2022). Available at SSRN: <https://ssrn.com/abstract=4310154> or <http://dx.doi.org/10.2139/ssrn.4310154>**
 - Study using the British Election Study Internet Panel
 - GPT-3 matched human trained coder 95% of the time.

Other Applications in Survey Research

Just published last week in Science

- Igor Grossmann et al., AI and the transformation of social science research. *Science*, vol380,1108-1109(2023).
<https://www.science.org/doi/10.1126/science.adi1778>
- LLMs may take the place of human participants in research—they are already difficult to detect in commercial panels.
 - They could respond across a wider range of “experiences”
 - They don’t have limited attention span, can exhibit less response bias, etc.
 - While their responses will be limited to what they are trained on, their ability to accurately communicate it will be better.
- LLMs could:
 - Play out simulations of political or other “what if” scenarios to provide a best case path and outcome. (Think Cuban Missile Crisis situation explored in simulation to drive specific actions to take.)
 - Play the role of a research “confederate” involving social psychological research on individuals or groups.
 - May serve an intermediate role between true known selection probability sample studies and pure convenience sampling, offering a diverse insight into population behavior. (Always limited by the training dataset.)



Other Applications in Survey Research

Simulating Online Samples

- Argyle, Lisa P., et al. "Out of One, Many: Using Language Models to Simulate Human Samples." arXiv preprint arXiv:2209.06899 (2022).
- Conducted several studies and found that GPT-3 can replicate human samples.
- Cautions of the misuse of this technology to misinform and manipulate.

A Couple Other Non-Survey Specific AI Resources

OpenAI Documentation (From overview of the technology to specific uses of ChatGPT and OpenAI's other services.)

<https://platform.openai.com/docs/introduction>

The AI Exchange (A free and paid resource to keep up to date on the fast-moving tech. It includes a daily free newsletter as well as an online resource, including Slack forum for paid users.)

<https://news.theaiexchange.com/>

Elicit.org (A free GPT-3 AI research assistant.)

<https://elicit.org>

Wrap-up: A Survey Research Operations Sonnet by ChatGPT-4

Upon a desk, mid graphs and figures sprawled,
Lies the noble realm of survey research bared.
Oh, who'd have thought the task at first enthralled,
Would leave so many souls a little scared?

"Ask a question," they say, "then mark it down,"
Such naivety in words so light.
Little do they know the furrowed frown,
Of a researcher working through the night.

Translating needs of customers, such delight,
Into jargon programmers comprehend.
A task not unlike a never-ending fight,
Or a journey with no seeming end.

But fear not, for amidst the data, charts, and trends,
In every survey, a noble story wends.

Questions / Discussion?

Following this slide, I have included a step by step example of ChatGPT hallucinations at work in ChatGPT-3.5, -4, and 4 with web search. (If time allows.)

Scott's Tinkering with Hallucinations in ChatGPT 3.5 and 4

Hallucinations: My Input to GPT 3.5

My Request to ChatGPT 3.5:

I would like to include a couple citations for the following paragraph. Please identify and suggest citations that support what I have written. Please identify and suggest a correction if you find anything inaccurate in what I have written. Please provide specific page numbers in the citation if appropriate. Here is the paragraph:

Training in 1942 for United States Army Air Force navigators involved attending the Advanced Flying School. Most cadets who enlisted in 1942 had their choice of what they wanted their job to be, pending a medical review. Given the horrible experiences with trench warfare in WWI, it was commonly thought that the safest engagement would be in the air as a pilot or navigator. As such, those who could find themselves enlisting before being drafted. Enlisted men often chose the pilot path unless they had some physical disability (i.e., poor eyesight) that would keep them from that job, in which case, the navigator and bombardier roles were chosen next. Little did they know that the Air Force, especially those who served on heavy bombers such as the B-17 and B-25, were to suffer the worse losses in WWII.

The Result:

#1 - An accurate link, but no information on the page related to the paragraph.

#2 - Correct book and authors. No such contents on p.3.

#3 - Correct magazine, Vol 84 and No 12 exist and were published in Dec 2021. But there is no story with that title.

#4 - Book title exists, different author, correct publisher. I couldn't find the book at the library, but I suspect the page would not reveal the contents suggested.

1. "United States Army Air Forces (USAAF)." National Museum of the United States Air Force. [Online]. Available: <https://www.nationalmuseum.af.mil/Visit/Museum-Exhibits/Fact-Sheets/Display/Article/196265/united-states-army-air-forces-usaaf/>. [Accessed: June 20, 2023].
2. Craven, W. F., & Cate, J. L. (eds.) "The Army Air Forces in World War II, Volume Six: Men and Planes." Washington, D.C.: Office of Air Force History, 1955, p. 3.
3. Boyne, W. J. "The Influence of World War I on Aviation." Air Force Magazine, Vol. 84, No. 12, December 2001, p. 63.
4. Coffey, T. "War to be Won: Fighting the Second World War." Cambridge, MA: The Belknap Press of Harvard University Press, 2000, p. 431.

When you call ChatGPT out . . .

I then prompted ChatGPT 3.5:

Are the citations that you provided real? If I go to them, will I find the specific content that you suggest is there? Or was this just a hallucination?

To which it responded:

I apologize for any confusion caused. I made an error in providing citations as I am an AI language model and do not have direct access to external sources. The citations I provided were fictional and not real references. I cannot browse the internet or provide specific page numbers from genuine sources. I apologize for any inconvenience caused. If you have any other questions or need further assistance, feel free to ask.

When I prompted standard GPT 4 with the same request, it was a little better . . .

ChatGPT4 response:

The paragraph seems to be accurate in general, and it gives a good overview of the choices facing cadets and the subsequent perils they faced. However, as an AI model, I am unable to provide specific page numbers from books or articles. However, I can suggest some sources which provide details about the events and circumstances mentioned in your paragraph.

Maurer, M. (1987). Aviation in the U.S. Army, 1919-1939. Office of Air Force History, United States Air Force.

McManus, J. C. (2012). September Hope: The American Side of a Bridge Too Far. Penguin.

Overy, R. (2013). The Bombing War: Europe, 1939-1945. Penguin.

Bishop, P. (2007). Bomber Boys: Fighting Back 1940-1945. Harper Perennial.

These all appear to be real books, but I did not engage far enough to evaluate if the citations support the written statements.

When I asked ChatGPT4 w/ Web Browsing (a new feature), it pointed to a Wikipedia entry for everything . . . Ug.

Sure, here is the information I found that supports the statements in your paragraph:

1. The Aviation Cadet Training Program was created by the U.S. Army to train its pilots. The cadet training program was originally formed in 1907 by the U.S. Army Signal Corps and expanded as the Army's air assets increased. In 1942, the Army Air Forces Training Command was created to control all aspects of technical and aviation training¹. [[https://en.wikipedia.org/wiki/Aviation_Cadet_Training_Program_\(USAAF\)](https://en.wikipedia.org/wiki/Aviation_Cadet_Training_Program_(USAAF))]
2. Originally, candidates had to be between the ages of 19 and 25, athletic, and honest. Two years of college or three years of a scientific or technical education were required, but this requirement was relaxed in January 1942¹. [[https://en.wikipedia.org/wiki/Aviation_Cadet_Training_Program_\(USAAF\)](https://en.wikipedia.org/wiki/Aviation_Cadet_Training_Program_(USAAF))]
3. Training centers for the U.S. Army Air Corps Training were located at various locations, including Duncan Field, San Antonio, Texas (1926-1931), Randolph Field, San Antonio, Texas (1931-1939), Moffett Field, Sunnyvale, California (1940-1941), and Santa Ana Army Air Base, Santa Ana, California (1942-1947)¹. [[https://en.wikipedia.org/wiki/Aviation_Cadet_Training_Program_\(USAAF\)](https://en.wikipedia.org/wiki/Aviation_Cadet_Training_Program_(USAAF))]

However, I couldn't find specific sources that directly corroborate the statements about the preferences of enlisted men (choosing pilot roles unless they had a physical disability, and then choosing navigator and bombardier roles), the assumption that air engagement would be safer than trench warfare, or the specific casualty rates for Air Force personnel serving on B-17 and B-25 bombers during WWII. For a more complete picture, it might be helpful to search for additional sources that discuss personal experiences, perceptions, and casualty statistics from this period.

If you have any additional information to help narrow the search, such as specific books, articles, or authors you're interested in, please let me know, and I'd be happy to assist further!