



How to Write an Abstract

LURA / USRA workshop
June 20, 2023



Agenda

› Welcome

› Presenters:

- Austin Martins-Robalin, Ph.D. Student, Civil Engineering, Past LURA/USRA student
- Soma Tripathi, Research Officer

› Presentation:

- What is an abstract?
- Why are you submitting an Abstract?
- Steps to Prepare an Abstract?
- When and How to Submit an Abstract?
- Examples – Good vs Bad
- Conference planning.

› Q&A

› Ice Cream Social

Research Conference August 17, 2023





Deadline: July 10, 2023, 9 am Via eClass

***Please note the change in the deadline**

**For questions on how to submit, reach out to us via Slack
or resday@yorku.ca**

What is an abstract?



Give me your thoughts!

Abstract Writing

What is an Abstract

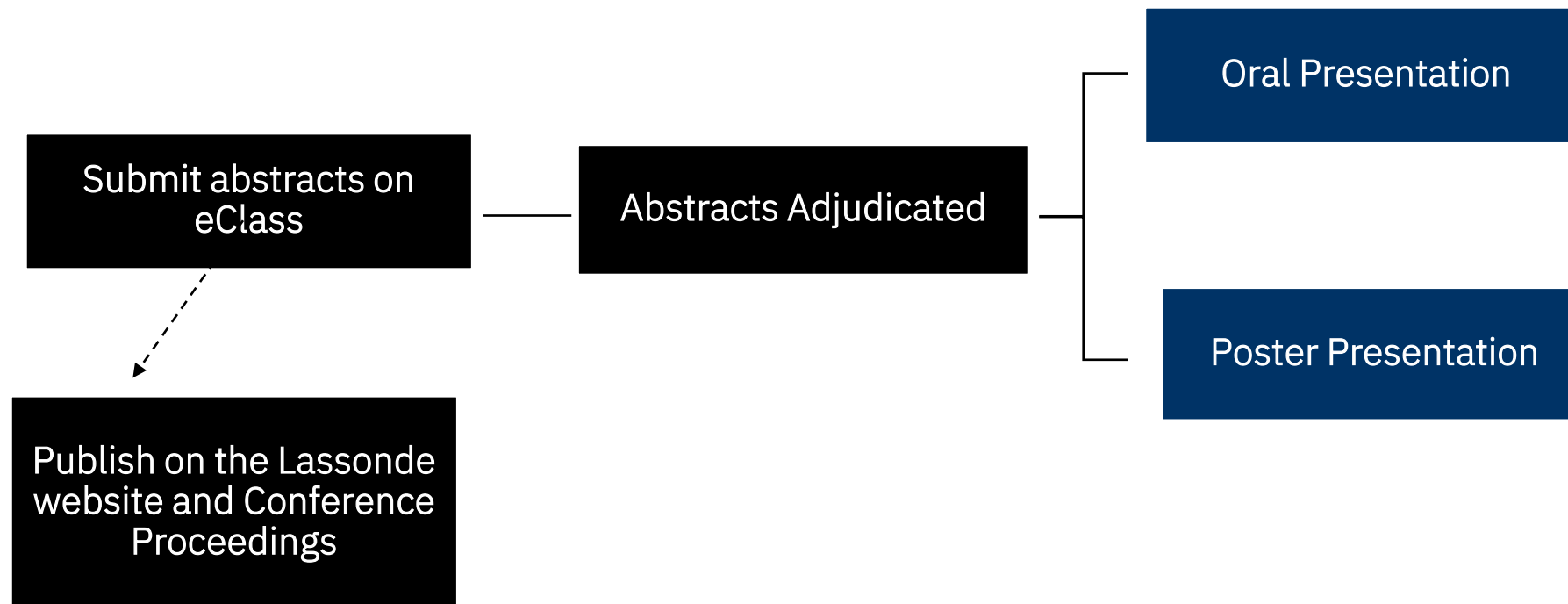
- A short and concise summary of a bigger project

Why am I submitting an Abstract?

- To be considered for the conference
- Disseminate research to the Research community
- All abstracts will be compiled into the conference brochure and conference webpage.
- Best abstracts will be chosen for oral presentation at the conference via adjudication



Next Steps...

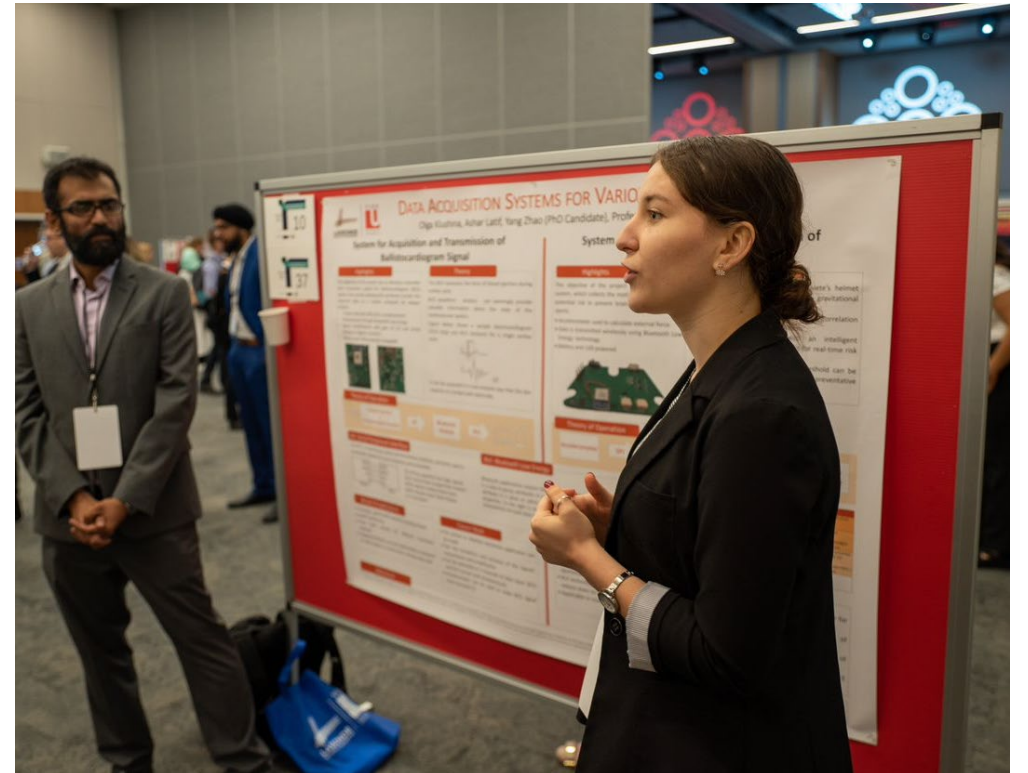


Oral vs Poster Presentation

Oral Presentations



Poster Presentations

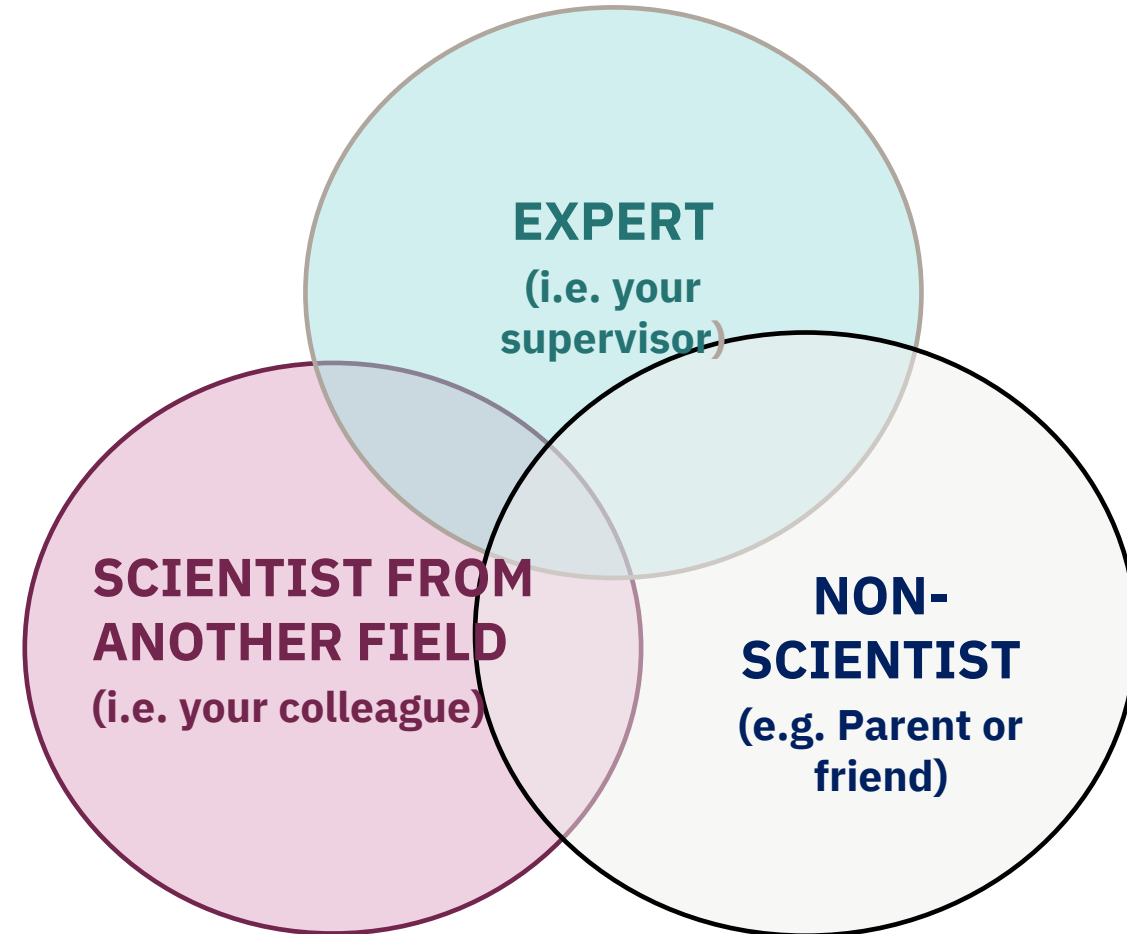


Steps to prepare an abstract

Who is going to read this?

- › Is it for a specific scientific journal? **No**
- › Is it for a conference within a specific field (e.g. pulp, paper, and forest industry conference)? **No**
- › Will it be read by experts and scientists from many fields? **Yes**
- › Will it be read by non-scientists? **Yes**

Explain your work to yourself/partner/family member, then write it down!



Steps to prepare an abstract

How should I start?

- Work with your professor/mentor to make sure the data is ok to share! Why? **IP (Intellectual Property)** concerns
- Read the past abstracts from the lab.

Are there required instructions?

- Title – **yes! The First Letter of Each Word Capitalized**
- Authors and affiliations at the top – **yes!**
- Word/Character Limit, abstract body – **250 to 300-word limit (the excess will be cut off)**
- Headings? – **No headings**
- Can you include numbers/p-values/data – **sure!**
- Anything else? – **Simple language so that other engineering streams can understand**

Steps to prepare an abstract

Working on a team project?

- Will this be a team abstract and presentation with other undergraduate researchers (s) who are a part of the Summer Research Conference?
- Submission form - If **yes**, fill in other undergraduate researchers (s) Name(s) (First Last, First Last) and their individual contributions and role in this work.
If **no**, fill N/A.
- Only one abstract submission is needed per group.
- Message @ask_Michelle in Slack to notify of group submission with names of members.

Steps to prepare an abstract

What to include?

- Why are you doing the work?
- What did **YOU** do?
- What did **YOU** find?
- The take-home message
- Reference to the UN SDG, if relevant

What NOT to include?

- Figures, tables, diagrams
- Quotes
- Jargon
- Abbreviations (spell out the first time you use an abbreviation)
- Some conferences and/or journals may have specific requirements



UN SDG

- When submitting the abstract, you will need to choose the UN SDG (United Nations Sustainable Development Goals).
- Essential for conference planning
- **Ask your supervisor which SDG Goal your project combats or use this link to find out yourself!**
- <https://osdg.ai/>



Steps to Prepare an abstract

What is required?

- › Title, authors, and affiliations!
- › Introduce the topic – 1 or 2 sentences
- › Background / What is missing? – 1 or 2 sentences
- › Objective / Hypothesis / Thesis – 1 sentence
 - The objective of this project is Therefore, we hypothesized that...
- › Methods – As needed
- › Results - As needed
- › Discussion / Conclusion – 1 to 3 sentences
 - Concluding sentence as broad summary and impact

Analyzing the vast coronavirus literature with CoronaCentral

Jake Lever^{a,1} and Russ B. Altman^a

^aDepartment of Bioengineering, Stanford University, Stanford, CA 94305

Edited by David L. Donoho, Stanford University, Stanford, CA, and approved April 5, 2021 (received for review January 18, 2021)

The SARS-CoV-2 pandemic has caused a surge in research exploring all aspects of the virus and its effects on human health. The overwhelming publication rate means that researchers are unable to keep abreast of the literature. To ameliorate this, we present the CoronaCentral resource that uses machine learning to process the research literature on SARS-CoV-2 together with SARS-CoV and MERS-CoV. We categorize the literature into useful topics and article types and enable analysis of the contents, pace, and emphasis of research during the crisis with integration of Altmetric data. These topics include therapeutics, disease forecasting, as well as growing areas such as “long COVID” and studies of inequality. This resource, available at <https://coronacentral.ai>, is updated daily.

coronavirus | literature categorization | machine learning |
literature analysis

<https://www.pnas.org/content/pnas/118/23/e2100766118.full.pdf>

Abstract Evaluation for Oral Presentations

Rubric

- Well Written Abstract
- Well Defined Project
- Well-described significance/impact of anticipated results

How do I find examples of past abstracts?

The logo for Google Scholar, featuring the word "Google" in its multi-colored font and "Scholar" in blue below it.

The logo for Scopus, featuring the word "Scopus" in a bold, orange, sans-serif font with a registered trademark symbol.

The logo for PubMed, featuring the word "PubMed" in blue, with the "M" stylized as a blue book icon.

Some helpful examples

Nature journals

- <http://www.markowetzlab.org/skills/How-to-write-a-Nature-abstract.pdf>

Elsevier

- <https://scientific-publishing.webshop.elsevier.com/manuscript-preparation/bad-vs-good-abstract/#::~:~:text=Bad%20abstract%3A%20Too%20short%20and,decide%20to%20read%20the%20article>

Wiley

- <https://www.wiley.com/network/researchers/preparing-your-article/how-to-write-a-scientific-abstract>

Example of a good abstract

One or two sentences providing a **basic introduction** to the field, comprehensible to a scientist in any discipline.

Two to three sentences of **more detailed background**, comprehensible to scientists in related disciplines.

One sentence clearly stating the **general problem** being addressed by this particular study.

One sentence summarising the **main result** (with the words "here we show" or their equivalent).

Two or three sentences explaining what the **main result** reveals in direct comparison to what was thought to be the case previously, or how the main result adds to previous knowledge.

One or two sentences to put the results into a **more general context**.

Two or three sentences to provide a **broader perspective**, readily comprehensible to a scientist in any discipline, may be included in the first paragraph if the editor considers that the accessibility of the paper is significantly enhanced by their inclusion. Under these circumstances, the length of the paragraph can be up to 300 words. (The above example is 190 words without the final section, and 250 words with it).

During cell division, mitotic spindles are assembled by microtubule-based motor proteins^{1,2}. The bipolar organization of spindles is essential for proper segregation of chromosomes, and requires plus-end-directed homotetrameric motor proteins of the widely conserved kinesin-5 (BimC) family². Hypotheses for bipolar spindle formation include the 'push-pull mitotic muscle' model, in which kinesin-5 and opposing motor proteins act between overlapping microtubules^{2,4,5}. However, the precise roles of kinesin-5 during this process are unknown. Here we show that the vertebrate kinesin-5 Eg5 drives the sliding of microtubules depending on their relative orientation. We found in controlled *in vitro* assays that Eg5 has the remarkable capability of simultaneously moving at $\sim 20 \text{ nm s}^{-1}$ towards the plus-ends of each of the two microtubules it crosslinks. For anti-parallel microtubules, this results in relative sliding at $\sim 40 \text{ nm s}^{-1}$, comparable to spindle pole separation rates *in vivo*⁶. Furthermore, we found that Eg5 can tether microtubule plus-ends, suggesting an additional microtubule-binding mode for Eg5. Our results demonstrate how members of the kinesin-5 family are likely to function in mitosis, pushing apart interpolar microtubules as well as recruiting microtubules into bundles that are subsequently polarized by relative sliding. We anticipate our assay to be a starting point for more sophisticated *in vitro* models of mitotic spindles. For example, the individual and combined action of multiple mitotic motors could be tested, including minus-end-directed motors opposing Eg5 motility. Furthermore, Eg5 inhibition is a major target of anti-cancer drug development, and a well-defined and quantitative assay for motor function will be relevant for such developments.

Example of what not to do for an experimental study (for this conference)



Acute administration of IL-6 improves indices of hepatic glucose and insulin homeostasis in lean and obese mice

Obesity can lead to impairments in glucose and insulin homeostasis, and although exercise is an effective treatment, the molecular targets remain incompletely understood. Here, male mice were fed a LFD as control, or a HFD which induced obesity and liver lipid accumulation. LFD- and HFD-fed mice were treated with IL-6 and insulin. IL-6 and insulin decreased blood glucose and impacted gene expression of Pck1, G6Pc, and Ppargc1a. Together, these data suggest that IL-6 may lead to improvements in glucose and insulin homeostasis.

Example of what not to do for an experimental study (for this conference)



Acute administration of IL-6 improves indices of hepatic glucose and insulin homeostasis in lean and obese mice

Obesity can lead to impairments in glucose and insulin homeostasis, and although exercise is an effective treatment, the molecular targets remain incompletely understood. [PURPOSE/HYPOTHESIS missing]. Here, male mice were fed a LFD as control, or a HFD which induced obesity and liver lipid accumulation. LFD- and HFD-fed mice were treated with IL-6 and insulin [explain this method]. IL-6 and insulin decreased blood glucose and impacted [does this mean ↑ or ↓?] gene expression of Pck1, G6Pc, and Ppargc1a [what is this?]. [Was there a second or third experiment?] Together, these data suggest that IL-6 may lead to improvements in glucose and insulin homeostasis. [Expand]

Legend

Abbreviation not defined

Not clear

Missing

Grammar

A good example from last year!



Mitigation Strategies for Informal Settlements in Developed Countries

Student's' Choice Oral Presentation Award: Melissa Spiegel

Approximately 1 billion people worldwide live in informal settlements (i.e. shantytowns, slums). This number is not limited to developing countries. Tent cities are often observed to emerge within metropolitan areas of developed countries, such as Toronto. The Covid-19 pandemic has exacerbated the situation as individuals would prefer to remain in their own dwellings than go to public shelters, which have increase risk for the virus. These informal settlements tend to emerge near transit stations and under highways due to the shelter these major infrastructures provide from the harsh Canadian weather. This research focuses on understanding the underlying mechanisms which lead to informal settlements emerging, as the frequency of fire is a consequence of their existence. Through examining root causes, mitigation strategies can be developed to reduce the risk to life and property in the city. This was achieved through analysis of a recent settlement fire within Toronto and the study of newly founded settlements in the aftermath of that fire. The objective of the research is to present a framework for understanding the establishment of settlements and the fire risk associated with them. Addressing this issue is particularly challenging as the dwellings are built without following building code regulations, however the proposed mitigation strategies will try to prevent the settlements from forming, and if they do form, will try to minimize the fire risk to inhabitants and the surrounding built infrastructure. "

Conference Planning

The Undergraduate Summer Research Conference

- › Biographies
 - Will be used for our [website](#), conference program, and social media (with your permission)
- › Research abstract
 - Due **July 10, 9 am**
- › Registration for the conference
 - due in **early August**, August 17, 2023

Preparatory Training Sessions

- › How to Prepare a Presentation

Abstract Writing
Workshop: June 20,
2023

Abstract Submission
Deadline: 9am, July
10, 2023

Presentation Skills
Workshop: July 25,
2023

Presentation
Submission
Deadline: Aug 14,
2023

Research
Conference: August
17, 2023

Contact or Questions?

Reach out to us via Slack or email:
resday@yorku.ca

Research Support Team

Soma Tripathi, Research Officer

Sosan Nasar, Research Administrative Coordinator

