

How to Prepare and Present a Great Research Poster

Dr. Jacqueline Jenkins

Civil & Environmental Engineering Department

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The screenshot shows the website for the 2022 Undergraduate Summer Research Award Recipients. The navigation bar includes links for CSU 2.0, President's Office, Academics, Admissions, Research, About CSU, A-Z Index, Events, MYCSU, and a search icon. The main content area features a sidebar with a menu for Student Research, including Undergraduate Research, Funding Programs, Guidelines, and Award Recipients (2017-2022). The main text describes the award program, stating that 51 proposals were funded across five colleges. It lists links for 2022 Undergraduate Summer Research Awards, Seminars (Graduate School Application Workshop, Job Searches & Interviews), and Events (Fall 2022 Undergraduate Research Poster Session). A right sidebar contains Student Research Quick Links (Office of Research, Sponsored Programs, Technology Transfer, Centers and Institutes) and Student Research on Twitter (two tweets from @EMDiS_CSU).

<https://www.csuohio.edu/student-research/2022-undergraduate-summer-research-award-recipients>

August 12

- Deadline to submit poster title and authors

September 9

- Deadline to submit abstract and poster
- Advisors email the CSU library the electronic version (i.e. pdf) of your poster for printing

September 22

- Tentative date for the 2022 Undergraduate Summer Research Award Poster Session

Poster Size

- Typically 4 ft × 3 ft, or 3 ft × 2 ft
- Landscape orientation
- Library plotter has 42" width

36"

24"

Comparing Two Driving Simulation Practice Scenarios for Steering and Speed Control

Student: Nancy Seck
Advisor: Jacqueline Jenkins

Purpose: To test the effectiveness and relative efficiencies of two practice scenarios

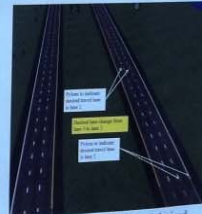
Methodology: Repeated measures driving simulation experiment with counterbalanced scenario order

- Scenario 1, participants followed posted speed limits, ranging from 30 to 65 mph and made 50 lane changes
- Scenario 2, participants drove at 50 mph and increased speed, as they were comfortable to do so, and made 20 lane changes

Data: Lane position (LP) at pylons and travel time ($t_i - t_{i-1}$) between pylons

Analysis:

- Fit learning curve to cost at pylons $C_i = |LP_i| \left[\frac{t_i - t_{i-1}}{t_{ideal}} \right]$
- Fit experience curve to cumulative cost per trial $CCPT_n = \frac{1}{n} \sum_{j=1}^n C_j$
- Compare means (t-test) and equality of variances (F-test) of cost and CCPT



Pylons on roadway indicated desired travel lanes and lane changes.

Conclusion: Both scenarios were effective in providing participants practice. Scenario 1 was more efficient than Scenario 2 in terms of observed travel speeds. Therefore, direct experience with travel speeds improves their learning to interact with the driving simulator.

PowerPoint
Adobe Illustrator
InDesign
Canva
Publish-It
Corel Draw
LaTeX, etc.

CSU library requires pdf file for plotting

Preparing Your Poster

Traditional Research Poster

Anatomy of an Ace Research Poster

<https://inchemistry.acs.org/content/inchemistry/en/college-life/research-poster-infographic.html>

Scientific Poster Design - Good and Bad Examples!

<https://www.youtube.com/watch?v=agtgnJP3KoQ>

Designing Research Posters

<https://www.youtube.com/watch?v=XDJeSj7u488>

Contemporary Research Poster

Mike Morrison, March 2019, How to create a better research poster in less time

<https://www.youtube.com/watch?v=1RwJbhkCA58>

Mike Morrison, July 2020, How to create a better research poster in less time

<https://www.youtube.com/watch?v=SYk29tnxASs>

Traditional

- Content

- Goal
- Audience
- Environment
- Expectations
- Restrictions

Genetic characterisation of coronaviruses in shelter dogs and cats in Lisbon

Ricardo C Rosado¹ (rcrosado@gmail.com), Ana Duarte², Augusto Baptista², Filomena Oliveira², Ana Machado², Leonel Fernandes², Luis Tavares³
¹CISA, Faculty of Veterinary Medicine, Universidade Técnica de Lisboa, ²DHURS, Câmara Municipal de Lisboa

Introduction

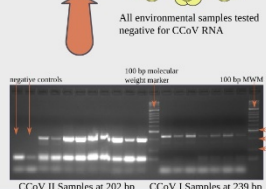
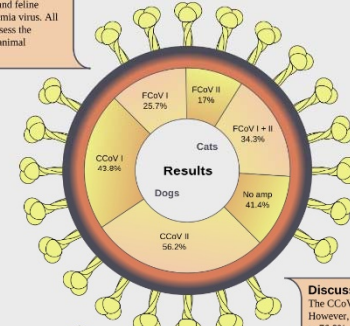
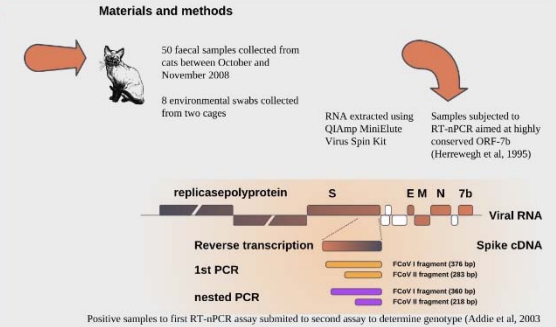
Coronaviruses (CoV) are classified into three different antigenic groups. Group 1 includes both canine (CCoV) and feline coronavirus (FCoV) and group 2 includes the recently recognized canine respiratory coronavirus (CRCoV). CCoV has been further classified into two genotypes, I and II, the first with high genetic similarity with FCoV. Both genotypes are responsible for the occurrence of enteritis in dogs, which can be fatal when associated in mixed infections with canine parvovirus (CPV), especially in younger dogs. FCoV have different classifications according to genotype and biotype. Due to their serological and genomic features FCoVs are classified as types I and II, where type I is strictly feline while type II resulted from a recombination event between FCoV and CCoV. FCoVs can be further classified into two biotypes. The enteric biotype (FECV) is present ubiquitously in cat populations, causing mild diarrhoea. The other recognized biotype of FCoV causes a lethal disease, feline infectious peritonitis (FIPV). This form with higher virulence only develops in a small percentage of animals, usually during primary infection and in kittens. The emergence of human coronavirus (SARS) has incited renewed interest in coronaviruses, and serological and virological investigations have reported worldwide presence and prevalence of these viruses in both domestic, as well as in free-roaming stray or feral dogs and cats. This knowledge is especially relevant in kennel and animal shelters. To investigate the genomic diversity of FCoV and CCoV in Lisbon's Municipal kennel, a virological survey was conducted which included canine distemper virus, canine and feline parvovirus, canine and feline coronavirus, feline immunodeficiency virus and feline leukaemia virus. All coronavirus positive samples were further characterized to assess the presence of different FCoV and CCoV genotypes within the animal population.

Materials and methods

49 faecal samples collected from cats between October and November 2008
 16 environmental swabs collected from four cages

RNA extracted using QIAmp MiniElute Virus Spin Kit

RT-PCR assay using different forward primers and common reverse primer to determine CCoV genotype (Pratelli et al., 2004)



Discussion

The CCoV prevalence found was consistent with previous studies. However, none of the animals was positive for both genotypes, in contrast to 76.8% of samples identified by Pratelli (2004). Eight of the positive animals also tested positive for CPV, which is in agreement with the involvement of CCoV in mixed infections. Although this finding can be due to an important environmental presence of CPV, none of these animals had clinical history of diarrhoea, supporting the idea that CCoVs aren't usually related to clinical disease in adult dogs. Regarding FCoV, the prevalence found was higher than reported in other countries and significantly higher than previously found in stray cat population in Portugal (Duarte et al., Submitted). The large number and heavy rotation of animals in the Municipal kennel makes it difficult to implement an efficient sanitization procedure and the presence of viral nucleic acid in the environment caused by this could be responsible for this high prevalence. Previous studies in Portugal concerning the distribution of FCoV genotypes showed a higher prevalence of FCoV type I among domestic cats (Duarte et al., 2009). Among the animals in our study we found similar prevalences for FCoV I and II and yet the percentage of co-infection within the same animal was higher than previously reported. Unfortunately we have no available data to correlate these results with the presence of the FIPV biotype. The high prevalence of coronavirus infection found in both dogs and cats in the Lisbon Municipal Kennel allowed the viral genetic characterization, showing a high rate of co-infection with both genotypes of FCoV and absence of co-infected animals with CCoV I and II. However further investigation is needed in order to maintain a molecular epidemiological surveillance and help identify further CoV strains, as well as understand the pathogenic potential of these viruses.

Acknowledgements

This work was sponsored by CISA-FMV as part of the Integrated Masters Degree in Veterinary Medicine. We are grateful to our colleagues and all the employees of the Lisbon Municipal Kennel for their collaboration and assistance in the collection of biological samples.

References


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Traditional

- Aesthetics


- [Arrangement](#)
- [Spacing](#)
- [Balance](#)
- [Fonts](#)
- [Color](#)



No evolution in the $M_{\text{BH}}-M_{\text{bulge, total}}$ -relation over the last 9 Gyrs

Knud Jahnke, Mauricio Cisternas, Katherine J. Inskip, and the COSMOS collaboration

Galaxy-Black Hole Coevolution | Emmy Noether-Group on Galaxy-Black Hole Coevolution | MPIA Heidelberg, www.mpia.de/coevolution



0 Intro & summary

We investigate 10 QSO host galaxies at $1 < z < 2$ in the COSMOS field, observed with the HST in both ACS/WFC I-band and NICMOS/NIC3 H-band. We combine stellar masses derived from host luminosities and M/L ratios based on (B-V) rest-frame colors, with virial black hole mass estimates from COSMOS. As a result we find the *total* galaxy mass scales with black hole mass identically to *bulge* mass and black hole mass in the local universe. This sets limits on the importance of AGN feedback in the creation of the $M_{\text{BH}}-M_{\text{bulge}}$ -relation.

Paper submitted to ApJL: Jahnke et al., arXiv:0907.5199

3 Results

10/10 of the host galaxies are resolved in the NIC3 H-band and 7/10 also in the ACS I-band. For these galaxies GALFIT provides an observed H-band magnitude and an (I-H) color from the best-fit model parameters. Magnitude and color are converted to restframe M_V and (B-V) using interpolation templates (Bruzual&Charlot 2003, Chabrier IMF, solar metallicity). For the three galaxies unresolved in I-band we assume two extreme colors that should bracket the actual value. Stellar masses are then computed from M_V and (B-V) using the calibration by Bell & de Jong (2001). The resulting relation between black hole mass vs. *total* stellar mass is shown in Fig. 2 below.

1 Data

COSMOS provides ~550 broad-line AGN from the XMM-Newton survey of the field (Hasinger et al. 2007, Cappelluti et al. 2009). For 10 of these images from both HST ACS F814W and HST NIC3 F160W parallels are available (Scoville et al. 2007), as well as virial black hole mass estimates from the COSMOS Magellan/IMACS (Trump et al. 2009) and the COSMOS surveys (Lilly et al. 2007, Merloni et al. 2009).

Note: All public released COSMOS data can be obtained from <http://irsa.ipac.caltech.edu/data/COSMOS/>

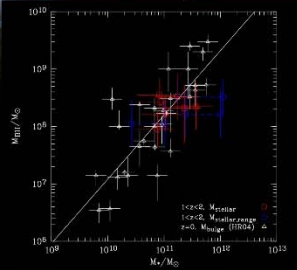


Figure 2: Black hole vs. stellar mass. Shown are the BH to bulge mass relation at $z=0$ of Haring & Rix (2004) in white, and our total stellar masses at $z=1.4$ in red. Blue points and lines bracket the masses for the three host galaxies unresolved in I-band.

2 Analysis

We extract host galaxy luminosities, modelling the two-dimensional light distribution of galaxy and AGN using GALFIT (Peng et al. 2002). The models are composed of a Sérsic component for the host galaxy and a point source for the AGN. To avoid biases the Sérsic index n is kept identical for ACS I-band and NIC3 H-band (see Fig. 1 for extracted NIC3 host galaxies).

4 Discussion & interpretation

We find that our galaxies with mean $z=1.4$ follow the local $M_{\text{BH}}-M_{\text{bulge}}$ -relation exactly – however, not with an explicit bulge mass, but with their total stellar mass. This allows for two interpretations:

- (1) If the galaxies are bulge-dominated, the $M_{\text{BH}}-M_{\text{bulge}}$ -relation has not changed over the last 9 Gyrs, for galaxies of $\log(M_{\text{stellar}})=11.3$ or $\log(M_{\text{BH}})=8.2 M_{\text{sun}}$.
- (2) Since we have indications that the galaxies contain substantial disk components (e.g., images in Fig. 1, Sérsic index distribution, B/T of similarly massive galaxies locally, morphological mix for these masses at $z=1$), the interpretation is different: Since the objects have to evolve towards the local $M_{\text{BH}}-M_{\text{bulge}}$ -relation (with their bulge mass), but follow this relation at $z=1.4$ with their total stellar mass, all mass-buildup of the bulge has to be fed from converting disk to bulge stars, induced by mergers or disk-instabilities, and not by star formation.

Black hole and bulge formation are disjoint and AGN feedback is likely neither a required nor possible ingredient to create the local $M_{\text{BH}}-M_{\text{bulge}}$ -relation at these masses.

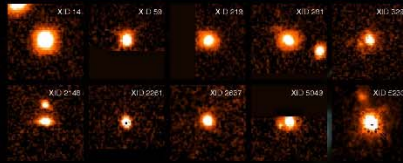


Figure 1: Extracted host galaxies from NIC3 F160W images (H-band). Image sizes are 7"x7". Some QSOs lie near the edges of NIC3 tiles.

5 References

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Knud Jahnke, 2009, CC-BY-SA-4.0
https://commons.wikimedia.org/wiki/File:Scientific_poster_by_Knud_Jahnke_or_International_Astronomical_Union_meeting_2009,_Rio_de_Janeiro.jpg

Traditional

- Technical
 - Software
 - Spelling & grammar
 - Image quality

Markus Suhr¹, Najko Jahn², Daniel Mietchen³, Harald Kusch^{1,4}

¹Department of Medical Informatics, University Medical Center Göttingen, Göttingen, Germany
²Göttingen State and University Library, Göttingen, Germany
³Data Science Institute, University of Virginia, Charlottesville, VA, USA
⁴Department of Molecular Biology, University Medical Center Göttingen, Göttingen, Germany

Motivation: Explore possibilities of Wikidata as a dissemination platform for a project's publication record to support findability, accessibility, interoperability, reusability (FAIR).

Approach: Transfer comprehensive set of CRC1002 scientific articles to Wikidata and enrich with semantic information about project funding and affiliation.

Collaborative Research Center 1002: Heart insufficiency

- biomedical CRC based in Göttingen, funded by the German Research Foundation (DFG) since 2012
- aims to identify specific treatment targets and develop therapeutic strategies to treat heart failure
- dedicated data management infrastructure ("INF") subproject run by the University Medical Center Göttingen (UMG) Department of Medical Informatics

Wikidata

- collaborative knowledge base serving Wikipedia and related projects from Wikimedia foundation
- representing scholarly communication is an ongoing effort which produced a set of helpful community driven tools for data entry, curation, query and display [1]
- data is stored as semantic triplet, e.g. item "CRC1002" (unique Wikidata identifier Q48693816), property "instance of" (P31), value "Collaborative Research Center" (Q2300983).



Schematic illustration of CRC1002 research data platform [2]. Developed by INF team as a set of interconnected modules based on the open source Drupal framework and integrated with commercial electronic laboratory notebook systems, the platform enables linking of publications with primary data acquired in the research process.

COLLECT DATA	MATCH AGAINST WIKIDATA ITEMS	CREATE NEW WIKIDATA ITEMS	ANNOTATE WIKIDATA ITEMS	PUBLIC REUSE OF FAIR DATA
<ul style="list-style-type: none">■ collect all scientific publications associated with CRC1002■ the curated list of publications is already available at the project website	<ul style="list-style-type: none">■ check if articles from the list are already represented as item in Wikidata■ use Digital Object Identifiers (DOI) or PubMed ID (PMID) as a reference	<ul style="list-style-type: none">■ missing items can be created using available tools and metadata■ articles not assigned with a persistent identifier can be manually created in Wikidata	<ul style="list-style-type: none">■ create "sponsor" property for publication items■ can be automated using Wikidata web-services■ all CRC1002 publications are marked as funded by the project and DFG	<ul style="list-style-type: none">■ semantically rich data about CRC1002 publications can be extracted from Wikidata■ a multitude of tools exist for retrieval and visualization

Wikidata Toolbox

- Source MetaData tool for scientific article metadata annotation and authorship matching
- Scholia toolset for scholarly communication information visualization
- Quickstatements tool for mass item creation and annotation
- Wikidata core API for generic retrieval and insertion
- Wikidata SPARQL endpoint for semantic queries

Results

- All CRC1002 publications are available in Wikidata (scan QR code on the right for live demo of SPARQL query)
- Scholia tools facilitate visualization and exploration of CRC1002 information and semantic knowledge graph.
- Associated Wikidata items and Scholia representations are directly accessible from CRC1002 publication display pages

Lessons Learned

- The proposed workflow leverages a set of metadata aggregation and editing tools in a way that could be automated using API calls with minimal programming effort.
- The emergent nature of Wikidata as openly editable collaborative knowledge base imposes challenges for mapping real-world relations like identifying best suitable properties and reconstructing already available related data models.
- Possible solutions are constraint and validation languages, increasing data quality at the cost of schema modelling [4].
- Representing scholarly outputs of research consortia in Wikidata is a useful prerequisite to facilitate the generation of Wikidata based articles in Wikipedia to further increase public visibility of scientific knowledge.

References

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[4] Thomson K, Salibi H, Sapp G, Lohr G, Mietchen D, Pflügermann C, et al. Using Shape Expressions (SHE) to Share RDF Data Models and to Guide Curation with Reusable Validation. 2018. doi:10.5281/zenodo.1214421

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Corresponding author:
Markus Suhr, markus.suhr@med.uni-goettingen.de
Daniel Mietchen, mietchen@cs.virginia.edu
Harald Kusch, harald.kusch@med.uni-goettingen.de



Contemporary

Billboard



Generalmiaow, CC-BY-SA-4.0
https://en.wikipedia.org/wiki/File:Drive_on_Left_sign,_Dublin_Airport,_August_2019.jpg

Museum Exhibit



Tim Evanson, CC-BY-SA-2.0
https://commons.wikimedia.org/wiki/File:Dinosaur_exhibit_-_Cleveland_Museum_of_Natural_History_%2834800587755%29.jpg

Title:
Subtitle



PRESENTER:
Leeroy Jenkins

BACKGROUND: Who cares? Explain why your study matters in the fastest, most brutal way possible (feel free to add graphics!).

METHODS

1. Collected [what] from [population]
2. Tested it with X process.
3. Illustrate your methods if you can.
4. Try a flowchart!

RESULTS

- Graph/table with **essential results only**.
- All the other correlations in the ammo bar.

Main finding goes here, translated into plain English. Emphasize the important words.



Visualize your findings with an image, graphic, or a key figure.



Take a picture to
download the full paper

AMMO BAR

Delete this and replace it with your...

- Extra Graphs
- Extra Correlation tables
- Extra Figures
- Extra nuance that you're worried about leaving out.
- **Keep it messy!** This section is just for you.

• Leeroy Jenkins, author2, author3, author4, author5, author6, author7, author42



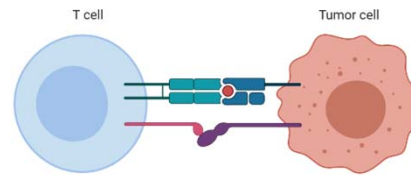
Teach people something cool you learned in 5 seconds as they walk by (or scroll by).



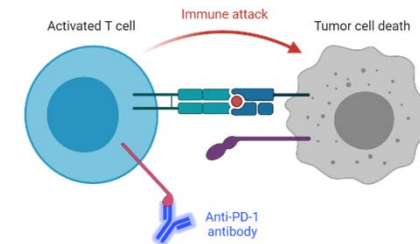
(illustrate your takeaway point)

Method

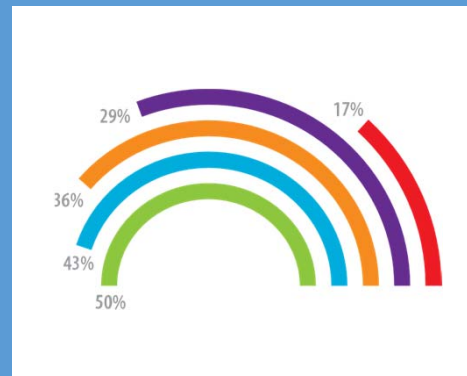
Immune checkpoint **inhibits** T-cell activation.



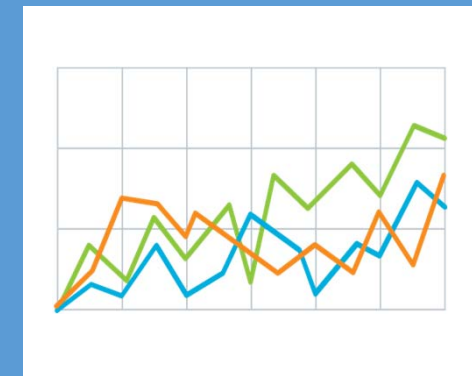
Anti-PD-1 antibodies **permit** T cell activation.



Explain what the graph shows. Like, **spoilers are good.**



Quickly explain what the graph shows. **Help people think.**



LEM HEWITT, Phillip Merman, Ted crisp
EXAMPLE Graphics donated by biorender.com



PRESENTER

Lem Hewitt

Background

Who cares? Explain why your study matters in the fastest, most brutal way possible (feel free to add graphics!).

Methods

N=564
Adult full-time workers

EXPERIMENT GROUP
Given iPod Touch's with a special app that pings them throughout the week with quick surveys.

Wait list (CONTROL GROUP)

Mood Survey (4x per day)
Participants notified by the iPod at random times to take a short mood survey assessing current mood and attention.

End-of-week Survey
Assessed overall performance for the week.

HLM analysis
Used to relate within-person mood to differences in performance.

Extra results

Assume they already read your punchline, and now include a little extra detail.

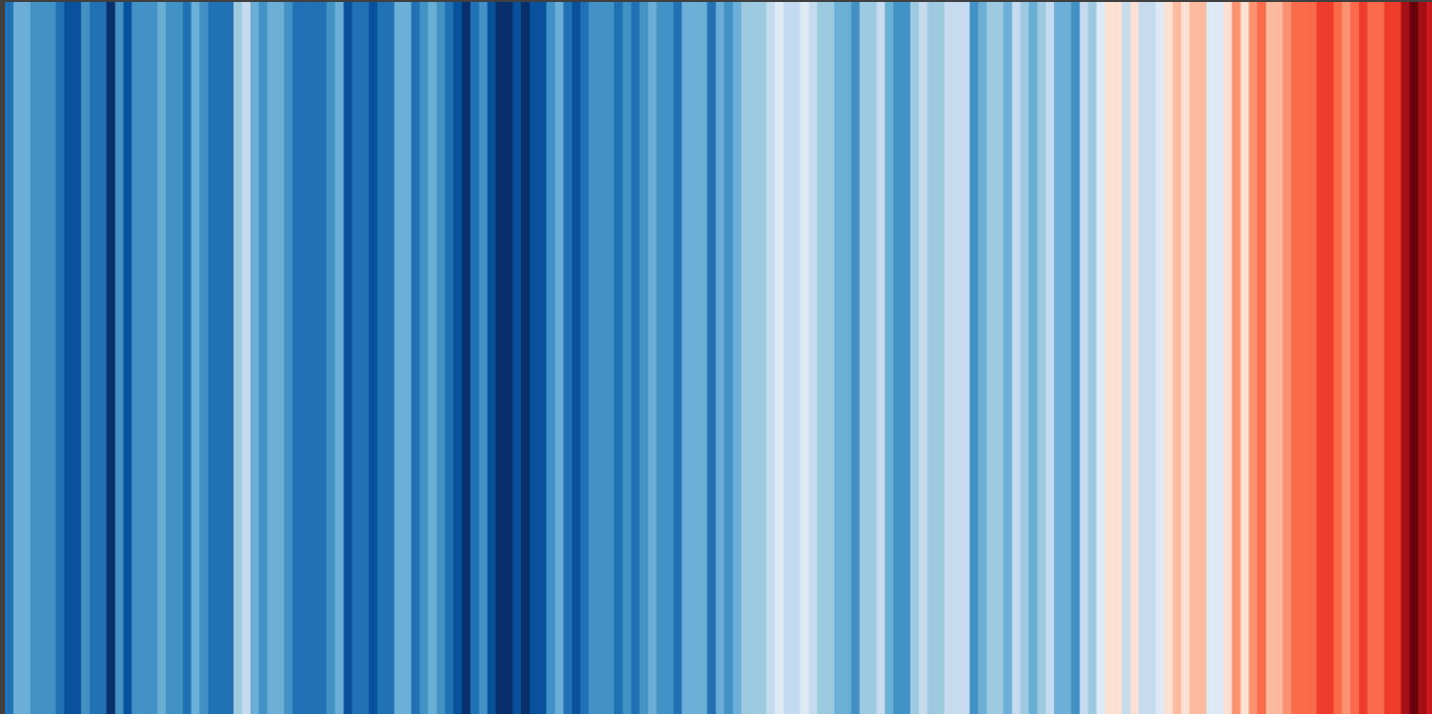


Teach people something cool you learned in 5 seconds as they walk by.



LEM HEWITT, Phillip Merman, Ted crisp, veronica palmer

Average global temperature 1850 - 2018



ED HAWKINS
SHOWYOURSTRIPES.INFO



We Don't Have to Pick a Side: The Middle Is A Fine Place to Be



Andrew R. Smith
Appalachian State University

INTRODUCTION

Mike Morrison created a template for a "Better Scientific Poster" (BSP) (<https://osf.io/ef53g/>)

The BSP format has been praised by many, yet disparaged by others.

The current project had 2 goals:

1. Create a template that I think could be useful.
2. Point out that we don't need to either love or hate the new format—the middle is just fine.

METHOD

To create a new template, I identified strengths of the BSP template and the traditional format.

BSP strengths: clear take-away message, minimal text, QR code

Traditional format strengths: room for figures, reasonable text size on sides, large title to make finding posters in poster session easy, web link and email for people who don't like QR codes

Why must we pick sides?

The new poster format is a revolution, or the new poster format is garbage!

Take the **good parts** of the new format, keep the **useful aspects** of the traditional format, add in your own ideas, and **create something better.**

Poster template: <https://osf.io/ayjzg/smithar3@appstate.edu>



RESULTS

Preregistered analysis: 78% increase in liking compared to traditional format and 24% increase compared to the BSP format.

1
Updated Pos

Exploratory analysis: room for improvement in this template (Arial font, seriously?!?!).

1
Arial For

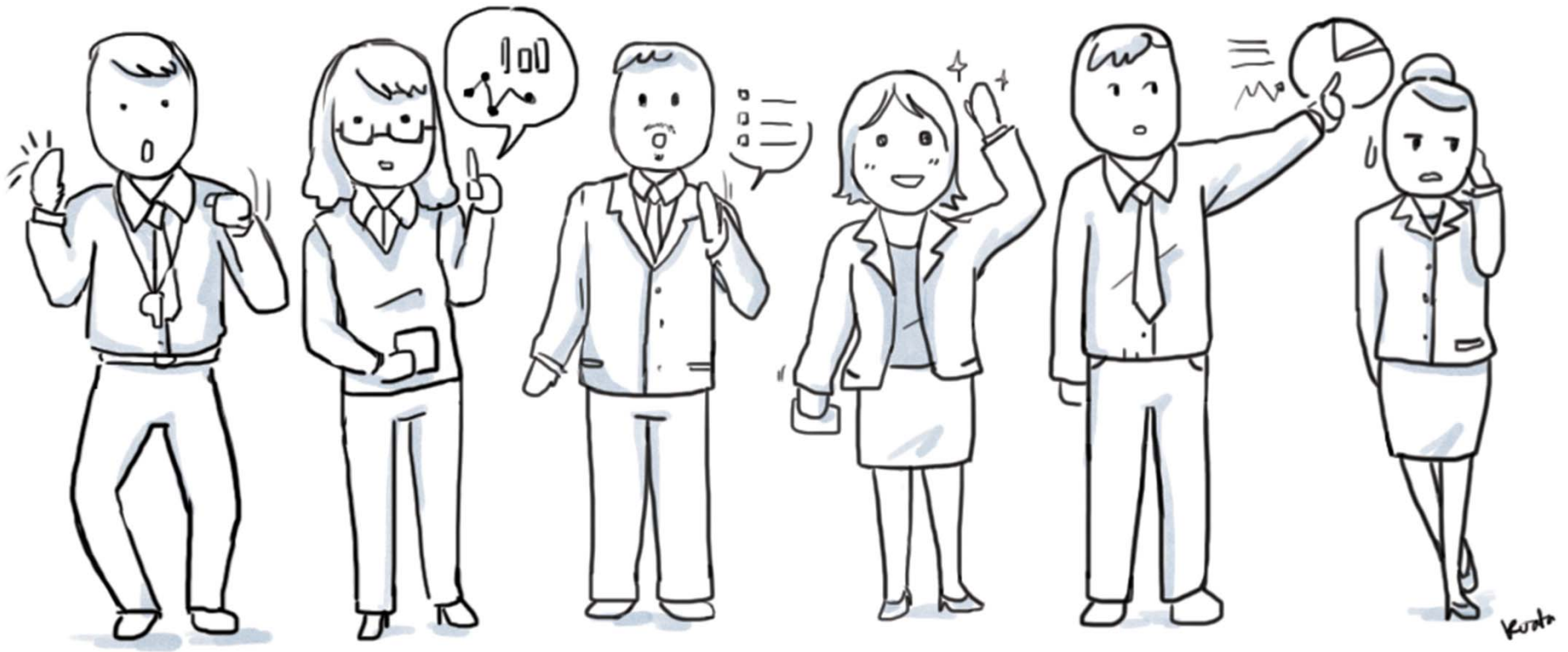
DISCUSSION

Sometimes it makes sense to pick a side; this is not one of those times.

Praise what you like, make suggestions for improvement, and **then make something better.**

Take Mike's ideas, incorporate some of mine, **be creative**, and let's make posters more useful.

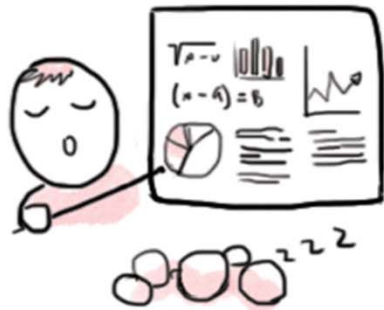
Presenting Your Poster



Kurata

The Coach The Inventor The Counselor The Storyteller The Teacher The Coordinator

The Drone



The Teacher



The Movie Star



The Relationship Builder



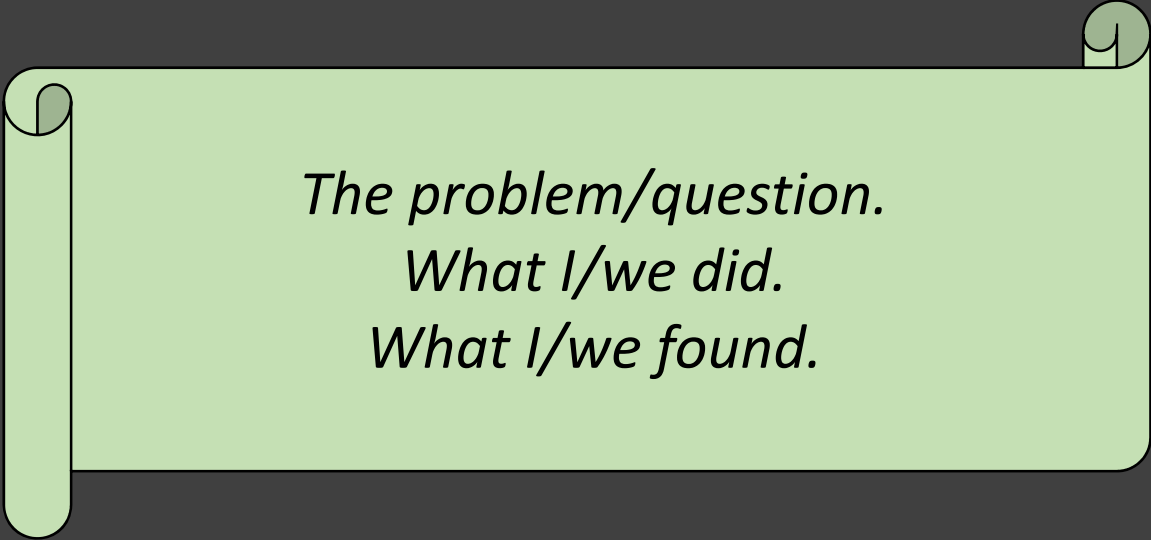
The "excellent" Presenter



Kurata

Spiel

- In 2 or 3 sentences, tell me about your research
- Audience appropriate
 - Technical jargon
 - Layman terms



*The problem/question.
What I/we did.
What I/we found.*

Engage the audience

- Prepare a couple questions
- Audience appropriate
 - Technical jargon
 - Layman terms

*Familiarity with the problem/question.
Knowledge about the research
method/apparatus.
Potential impact on their
job/family/life.*

Setting the stage

- Dress the part
- Meet your neighbors
- Clear the poster area
- Remain attentive



Don't Forget...

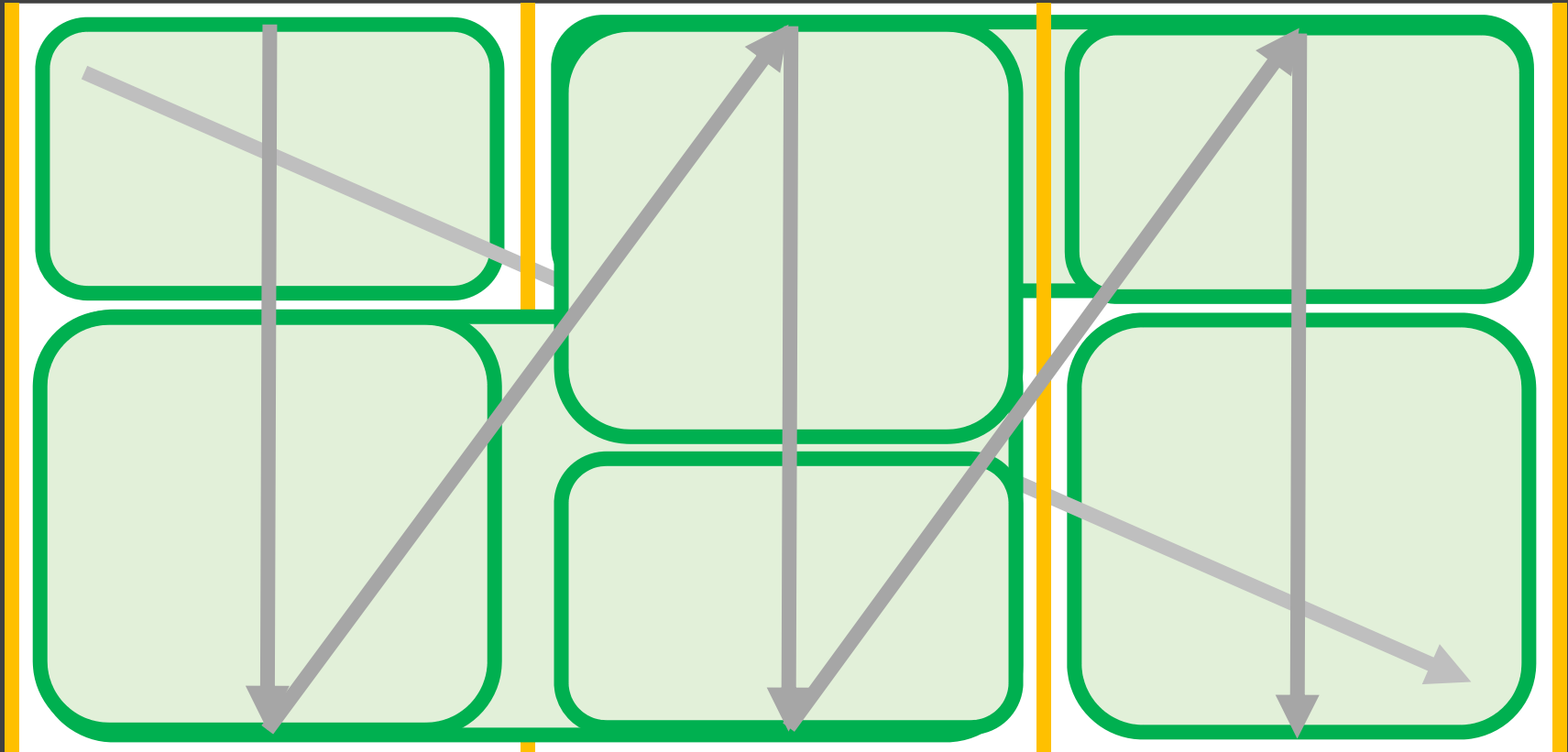
Have fun sharing your research
and meeting new people!



Undergraduate Student RESEARCH



Arrangement

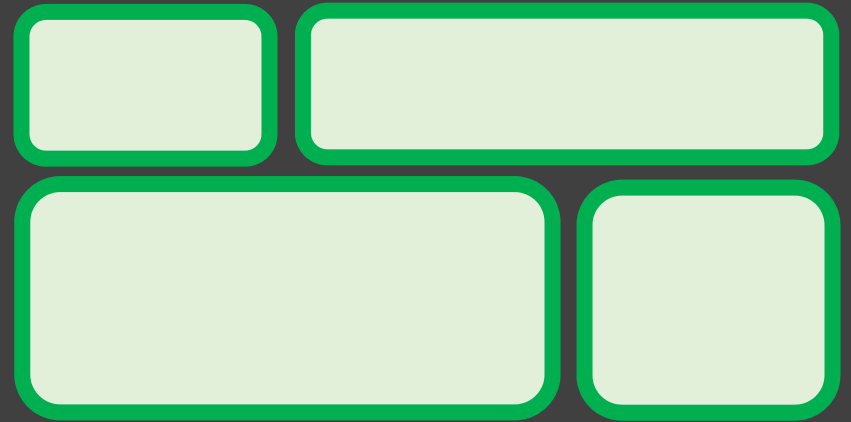


Which has better spacing?

GREEN



WHITE



Which has better spacing?

GREEN

Pink Floyd
THE WALL
1979
Another Brick
in the Wall
Roger Waters

We don't need no education

We don't need no thought control
No dark sarcasm in the classroom
Teachers leave them kids alone
Hey! Teacher! Leave us kids alone!
All in all you're just another brick in the wall.
All in all you're just another brick in the wall.

Daddys Flown Across the Ocean
Leaving Just a Memory
A Snapshot in the Family Album
Daddy what else did you leave
for me?
Dad What You Leave Behind for
me?
All in all you're just another
brick in the wall.
All in all you're just another
brick in the wall.

When we grew up
and went to school,
there were certain
teachers who would
hurt the children
anyway they could
by pouring any
region upon anything
they did, exposing
every weakness and
carefully they did to
the kids.

WHITE

Pink Floyd
THE WALL
1979
Another Brick in the Wall
Roger Waters

We don't need no education
We don't need no thought control
No dark sarcasm in the classroom
Teachers leave them kids alone
Hey! Teacher! Leave us kids alone!
All in all you're just another brick in
the wall.
All in all you're just another brick in
the wall.

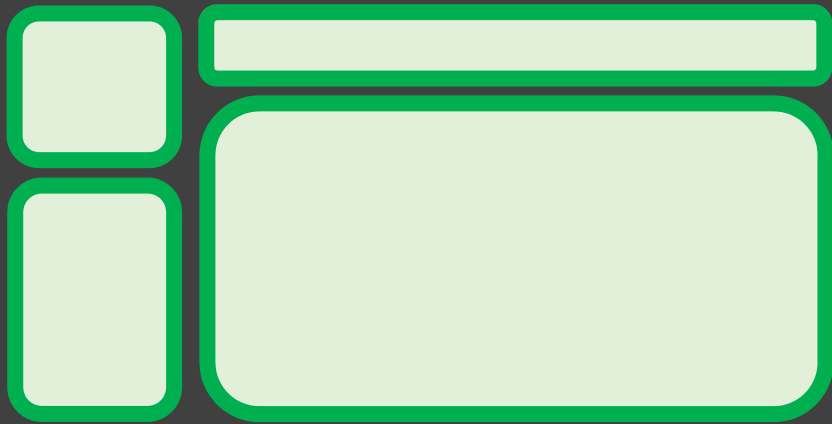
Daddys Flown Across the Ocean
Leaving Just a Memory
A Snapshot in the Family Album
Daddy what else did you leave
for me?
Dad What You Leave Behind for
me?
All in all you're just another brick
in the wall.
All in all you're just another brick
in the wall.

When we grew up and went to
school, there were certain teachers
who would hurt the children
anyway they could
by pouring any region upon
anything they did, exposing every
weakness and carefully they did to
the kids.

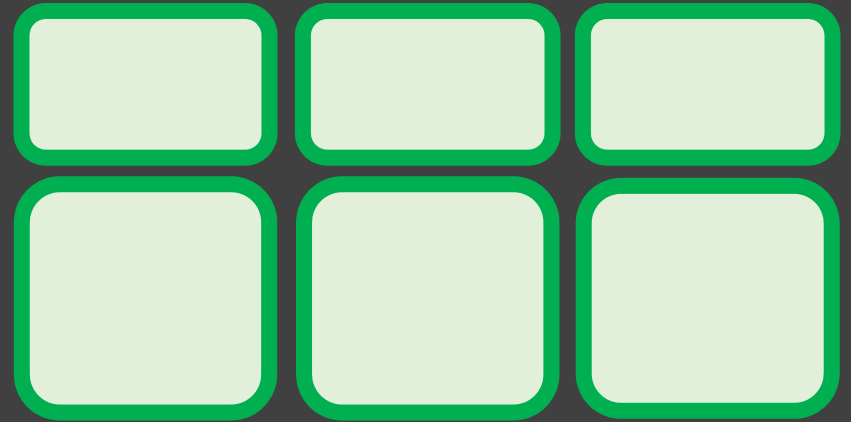


Which has better balance?

GREEN



WHITE



Fonts

84 to 96 pt Title

30-56 pt Authors

30-48 pt Headings (San serif font)

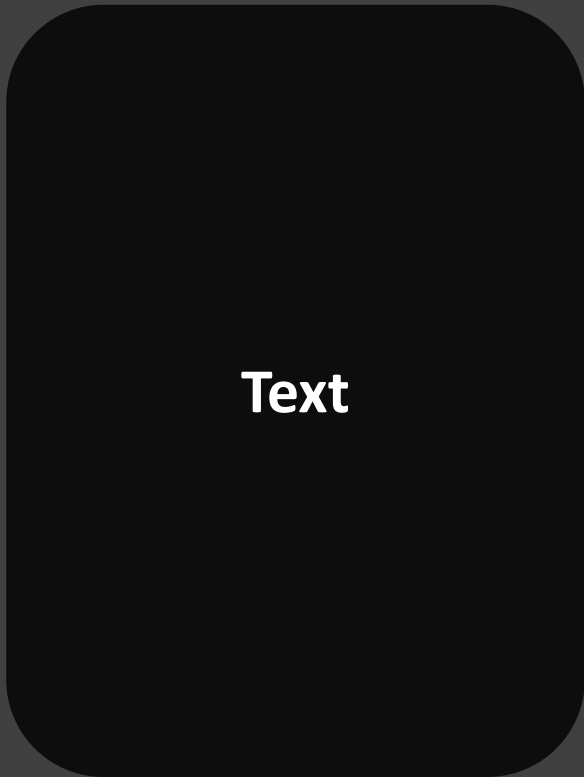
24-32 pt text (Serif font)

18-24 pt text for references, acknowledgements, captions

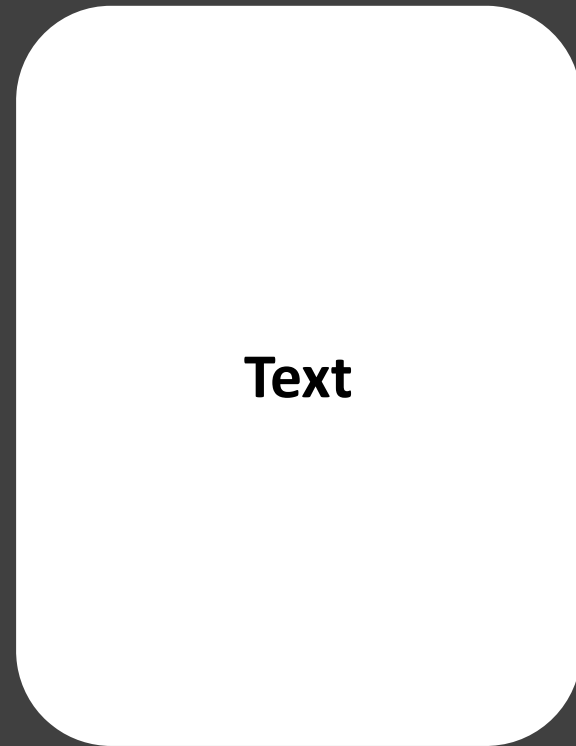


Which do you prefer?

GREEN

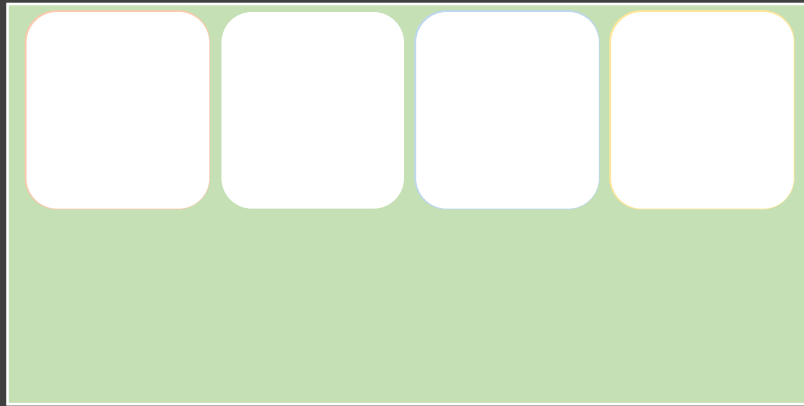


WHITE

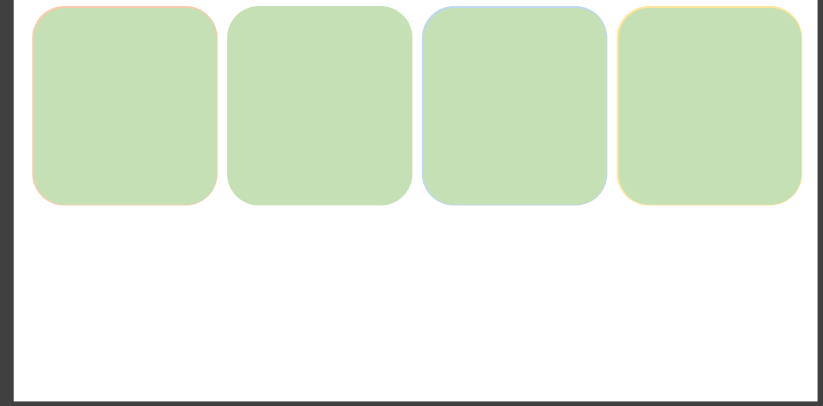


Which do you prefer?

GREEN



WHITE

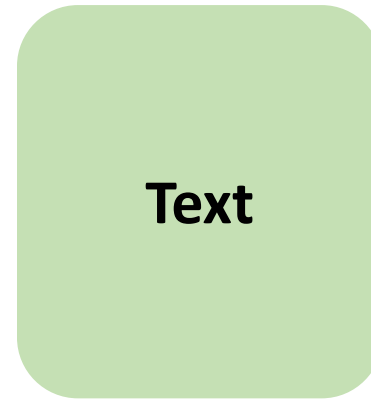


Which do you prefer?

GREEN



WHITE

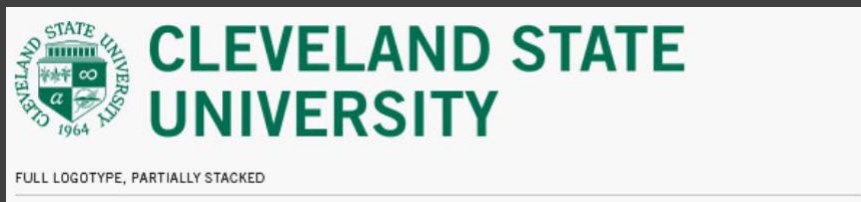
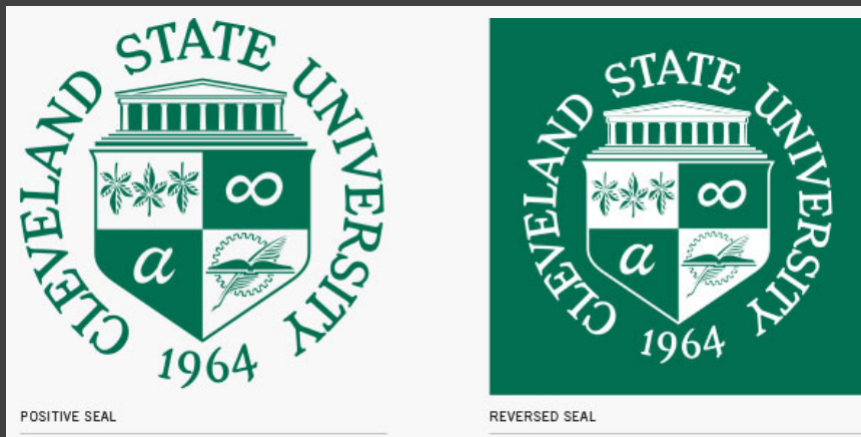




CSU Representatives

<https://www.csuohio.edu/marketing/brand-style-guide>

- CSU color palette
- CSU seals
- CSU logos



UNIVERSITY GREEN
PMS 342
CMYK COATED: 100-9-66-41
CMYK UNCOATED: 97-7-80-33
RGB: 0-106-77
HEX: 006A4D

FRESH GREEN
PMS 368
CMYK COATED: 63-0-97-0
CMYK UNCOATED: 51-0-86-0
RGB: 105-190-40
HEX: 69BE28

PRIMARY PALETTE

CITRON
PMS 382
CMYK COATED: 2A8-0-92-0
CMYK UNCOATED: 32-0-82-0
RGB: 190-214-0
HEX: BED600

SKY
PMS 2915
CMYK COATED: 61-7-0-0
CMYK UNCOATED: 53-4-1-0
RGB: 94-182-228
HEX: 5EB6E4

PUMPKIN
PMS 151
CMYK COATED: 0-55-100-0
CMYK UNCOATED: 0-45-90-0
RGB: 255-121-0
HEX: FF7900

GOLDENROD
PMS 116
CMYK COATED: 0-12-100-0
CMYK UNCOATED: 33-80-0-0
RGB: 254-203-0
HEX: FECB00

ORCHID
PMS 248
CMYK COATED: 45-100-0-0
CMYK UNCOATED: 38-82-16-0
RGB: 155-24-137
HEX: 9B1889

SECONDARY PALETTE – CONTEMPORARY

BERRY
PMS 491
CMYK COATED: 15-85-53-54
CMYK UNCOATED: 24-77-67-25
RGB: 120-48-55
HEX: 783037

NAVY
PMS 540
CMYK COATED: 100-57-12-61
CMYK UNCOATED: 94-43-11-45
RGB: 0-51-89
HEX: 003359

AMBER
PMS 7555
CMYK COATED: 18-37-100-1
CMYK UNCOATED: 15-33-76-0
RGB: 209-159-42
HEX: D59E0F

PLUM
PMS 2622
CMYK COATED: 64-93-32-18
CMYK UNCOATED: 53-69-34-10
RGB: 104-48-100
HEX: 693065

SECONDARY PALETTE – TRADITIONAL

CHARCOAL
PMS WARM GRAY 11
CMYK COATED: 23-32-31-64
CMYK UNCOATED: 52-48-52-9
RGB: 103-92-83
HEX: 675C53

CANVAS
PMS WARM GRAY 2
CMYK COATED: 4-5-7-10
CMYK UNCOATED: 5-5-9-10
RGB: 213-210-202
HEX: D5D2CA

SECONDARY PALETTE – NEUTRALS