

Academic / Technical Writing

in Computer Science

Part II, Topic 6:

Writing and Publishing Papers



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Ukrainian Catholic Uni., Lviv, Fall 2019
M.Sci Programme in CS - DS



Plan

SCOPE: Conference Research Papers

- **Motives** (wish to)
- **Commitments** (have to)
- **Pre-requisites:**
 - Doing research (**Scientific Method**)
 - Choosing the **Venue** (estimating the **chances**)
- **Ingredients:** aspects to be addressed
- An **after-taste** check
 - Did your paper finally happen?
- **Final Remarks**

Credits

- Many thanks to all those, whose
 - Images
 - Slide samples and fragments
 - Papers
 - Ideas
 - Recommendations
 - Statements
 - Practices
 - Political slogans


I used or cited while preparing this material

- All the bits are carefully referenced throughout this slide set

Disclaimer

- All citations, textual or pictorial, used in this slide-set are provided for illustrative purposes ONLY
- The use of these citations does not mean expressing any support or otherwise critique of the authors / owners and their respective views
 - Just a bit of attitude, perhaps ...



Why  would
I Write this
Paper?

A Pathway to a Solution

- Written texts, like **professional papers**, are for ... ?
 - **Readers**
 - Looking for a solution of **their** problem
- Your **manuscript**
 - A **pathway** for **readers** in a **solution space**
 - From their **initial** state (have the **problem**)
 - To the **target** state (have the **solution**)
- The **better** your manuscript is **written**
 - The **shorter** and more **comfortable** the **path** is

Good Reasons to Write



I might wish to:

- **Convey my results** to professional readers
- My peers **cross-evaluate** my results against theirs
- Put my brain dump in a **proper structure and order**
- **Transfer** my solution to the professional **community**, including **industry**
- **Impact** the technology
- Hoh, **be cited**

I have to:

- Do it **anyway** ... as the **partial fulfilment** ...
 - Like your M.Sci Project Exposé as a position paper
- I'm **appraised** based on what I write and publish

Poor Reasons to Write



- I will **then know what to do** in my project ...
 - Exactly on the contrary ...
 - Project **proposals**
- I dream to be **famous** ...
 - You'd better **write fiction** then ...
- My **super(visor/ordinate)** tasked me ...
 - If she wants to get published, please **let her write** ...
 - Teamwork is a **slightly different** thing
- Non-exhaustive list ...

Pre-Writing

(before deciding if you wish to ...)

Recall: Doing, than Writing...

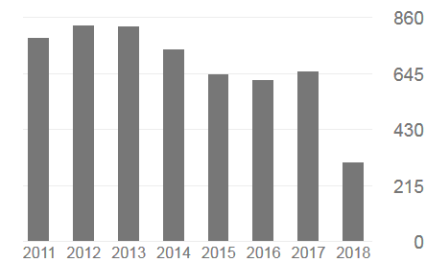
- “Let us first **deliver** and then ... we might **wish to write** a couple of papers ...”

- Prof. Hans Akkermans, BI, VUA at an EU project meeting (last century)
- One of the “giants” in CS



<https://akmcbv19.home.xs4all.nl/>

	All	Since 2013
Citations	13542	3782
h-index	44	23
i10-index	119	40



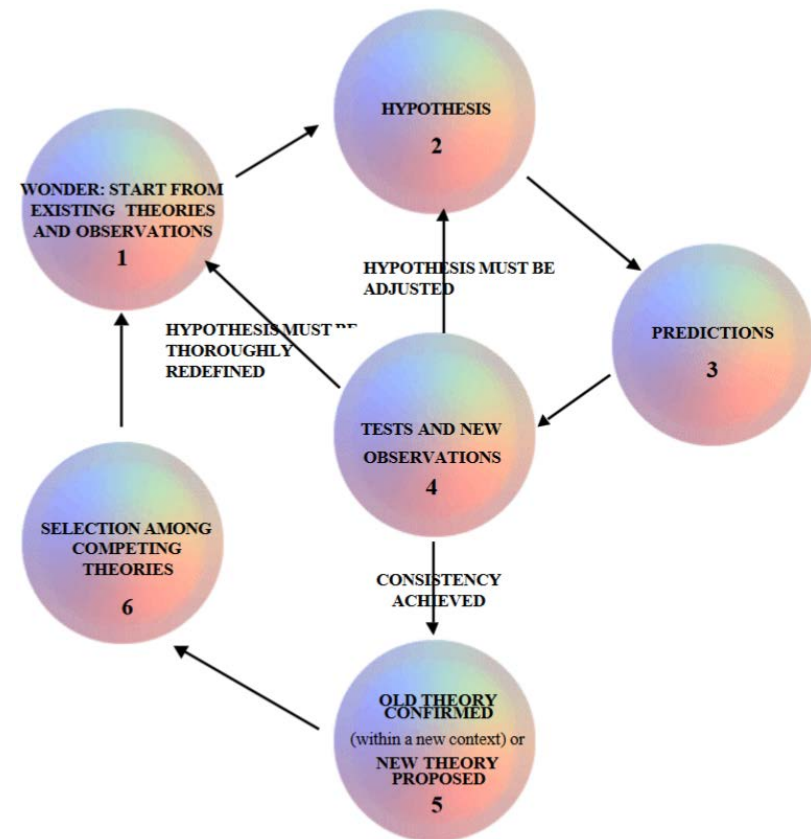
- **Yet more important:**
 - How to **do research** in a proper way?

How to: the Scientific Method

RESEARCH? - Getting knowledgeable about what has NOT been known

A **pattern***:

- Very **similar** in different sciences / branches
 - Philosophy ... CS ... Medicine
- **Iterative**
 - Posing a Question (1)
 - Hypothesis (2)
 - Prediction (3)
 - Test (4)
 - Revision / Refinement (5)
 - Evaluation / Benchmarking (6)



* Dodig-Crnkovic, G.: Scientific Methods in Computer Science. Proc. Conf. for the Promotion of Research in IT at New Universities and at University Colleges in Sweden (2002)

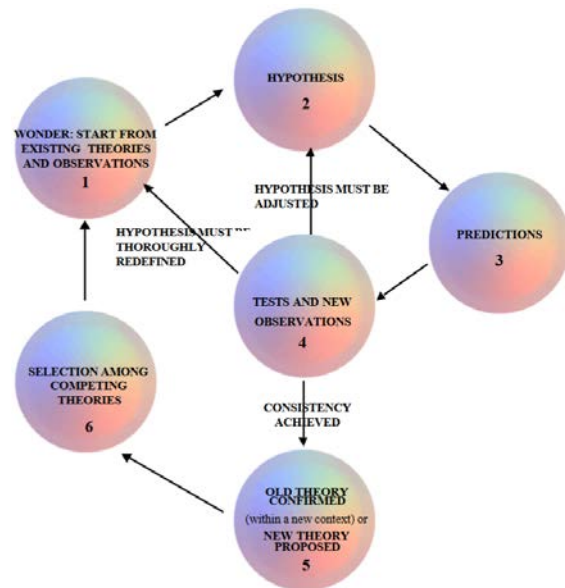
Research Methodology (CS)

- A derivative of the Scientific Method
 - Subclass-of
- Different sorts – for various kinds of research
 - Theoretic
 - Experimental
 - Mixes / Synthetic
- **Pattern:**
 - Situation (incl. Motive) – Problem – Approach (incl. Process) – Solution – Evaluation/Proof

Scientific Method \Rightarrow Structure

- **Iterative**

- Question (1)
- Hypothesis (2)
- Prediction (3)
- Test (4)
- Revision / Refinement (5)
- Evaluation / Benchmarking (6)



- Introduction
- Motivation
- Problem Setting
- Related Work
- Approach to Solution (background/transition/foreground/methodology)
- Solution (and Discussion)
- Evaluation (Objective, Plan, Data, Tool, Results, Discussion)
- Conclusions, Recommendations, and Future Work

Is your Result Publishable?

- = **Demanded** by the **Readership**
 - Helps them **solve THEIR problem** (Relevance)
 - Is, indeed, **NEW** (Novelty, Related Work)
 - Does **BETTER** than predecessors (Efficacy, Evaluation)
 - Available for **USE** and **REPRODUCTION** (Public Access)
 - Potentially, has **IMPACT**
- **How to know?**
 - Write a **technical report**
 - **Present** to your **peers**
 - Make it **public** (e.g. ResearchGate)
 - NDA (cross-check with your Legal)
 - **Monitor** the interest

E.g. a Technical Report

Technical Report

Full-text available




Cross-Evaluation of Automated Term Extraction Tools

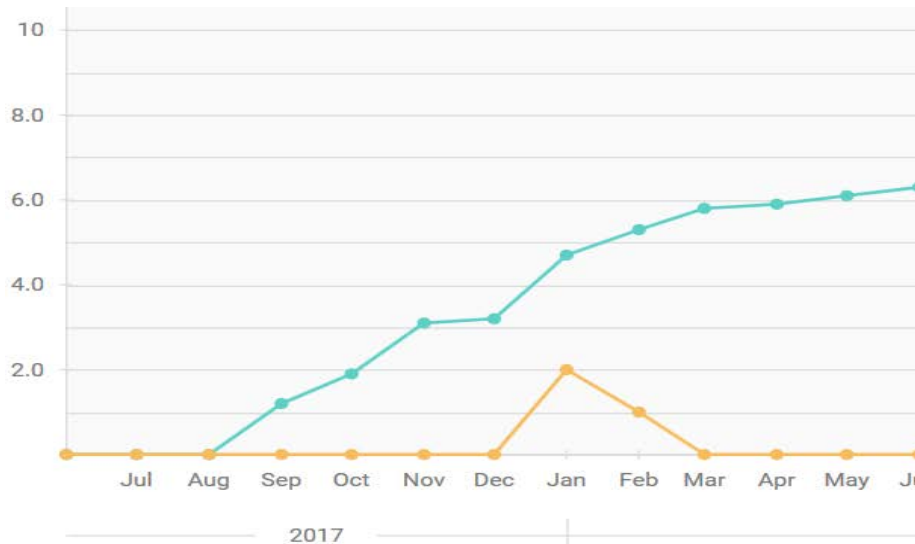
September 2017

Report number: TS-RTDC-TR-2017-1 · Affiliation: Zaporizhzhia National University, Ukraine

Projects: [SemData: Semantic Data Management](#) · [OntoElect: a Methodology for Domain Ontology Refinement](#)

Lab: [Intelligent Systems](#)

 Victoria Kosa ·  David Chaves-Fraga · Dmitriy Naumenko · [Show all 7 authors](#) ·  Aliaksandr Birukou



Research Interest ⓘ 9.3

Citations  4

Recommendations 0 new 0

Reads ⓘ 1 new 282

Research Interest ⓘ 9.3

Citations 4

Recommendations 0

Reads by RG members 70

• Full-text reads 38

• Other reads 32

This item's Research Interest is higher than 79% of research items on ResearchGate.

https://www.researchgate.net/publication/319987878_Cross-Evaluation_of_Automated_Term_Extraction_Tools

... Published as a Paper

The screenshot shows a Bookmetrix page for a chapter. On the left is a book cover for 'Information and Communication Technologies in Education, Research, and Industrial Applications' edited by Nick Bassilades, Vadim Ermolayev, Hans-Georg Fill, Vitaliy Yakovyna, Hejran E. Mayr, Mykola Nikitenko, Grygorii Zholkevych, and Aleksander Spivakovsky. The chapter title is 'Cross-Evaluation of Automated Term Extraction Tools by Measuring Terminological Saturation' by Victoria Kosa, David Chaves-Fraga, Dmitriy Naumenko, Eugene Yuschenko, Carlos Badenes-Olmedo, Vadim Ermolayev, and Aliaksandr Birukou. The page includes statistics: 211 Downloads, 0 Citations, 0 Reviews, 0 Mentions, and 3 Readers. A section titled 'Most Downloaded Chapters' lists the current chapter as the top result with 211 Downloads. A link 'Learn more about how we calculate our download figures' is also present.

CHAPTER 7
Information and Communication Technologies in Education, Research, and Industrial Applications

Cross-Evaluation of Automated Term Extraction Tools by Measuring Terminological Saturation

Authors: Victoria Kosa • David Chaves-Fraga • Dmitriy Naumenko • Eugene Yuschenko • Carlos Badenes-Olmedo • Vadim Ermolayev • Aliaksandr Birukou

This paper reports on cross-evaluating the two software tools for automated term extraction (ATE) from English texts: NaCTeM TerMine and UPM Term Extractor. The objective was to find the most fitting software for extracting the bags of terms to be

[Read more](#)

Downloads	Citations	Reviews	Mentions	Readers
211	0	0	0	3

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Most Downloaded Chapters

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Cross-Evaluation of Automated Term Extraction Tools by Measuring Terminological Saturation	211

<http://www.bookmetrix.com/detail/chapter/82760a80-f861-4e30-905e-b126d5bc04cd>

Where to Publish?

- No universal answer – always a **trade-off**:



1. Choose a **RELEVANT** conference (scope)
2. Check **previous proceedings**
3. Compare your **contribution** (value)
4. Assess your **chance**

E.g. Impact vs Competition

- International Semantic Web Conference (**ISWC**)

Metrics Help		<div><div></div></div> Cites	Per year	Rank	Authors	Title	Year
Publication years:	1998-2018	<div><div></div></div> h 446	27.88*	1	DP Siewiorek, A Smailagic, J Furukawa...	SenSay: A Context-Aware Mobile ...	2003
Citation years:	21 (1998-2019)	<div><div></div></div> h 360	17.14*	2	J Healey, RW Picard	StartleCam: A Cybernetic Wearabl...	1998
Papers:	150	<div><div></div></div> h 193	12.06*	3	T Degen, H Jaeckel, M Rufer, S Wyss	SPEEDY: A Fall Detector in a Wrist...	2003
Citations:	3733	<div><div></div></div> h 176	11.00*	4	A Krause, DP Siewiorek, A Smailagic...	Unsupervised, Dynamic Identificat...	2003
Cites/year:	177.76	<div><div></div></div> h 170	11.33*	55	E Sirin, B Parsia	Planning for Semantic Web Servic...	2004
Cites/paper:	24.89	<div><div></div></div> h 115	7.67	56	M Kifer, R Lara, A Polleres, C Zhao, U...	A Logical Framework for Web Ser...	2004
Cites/author:	1257.78	<div><div></div></div> h 112	8.62	57	H Halpin, V Robu, H Shepard	The Dynamics and Semantics of C...	2006
Papers/author:	56.56	<div><div></div></div> h 109	6.81	5	N Sakata, T Kurata, T Kato, M Kouro...	WACL: Supporting Telecommunic...	2003
Authors/paper:	3.27	<div><div></div></div> h 93	5.47	7	JF Knight, C Baber, A Schwartz, HW Bri...	The Comfort Assessment of Wear...	2002
h-index:	28	<div><div></div></div> h 91	6.50	6	J Hartmann, Y Sure, P Haase, R Palma...	OMV-ontology metadata vocabul...	2005
g-index:	56	<div><div></div></div> h 87	5.44	8	T Martin, MT Jones, JN Edmison, R S...	Towards a design framework for ...	2003
hI,norm:	18	<div><div></div></div> h 86	6.62	9	D Moodley, I Simonis	A new architecture for the sensor ...	2006
hI,annual:	0.86						
*Count:	6						

- H-index: 28
- G-index*: 56
- CORE: A-Conference
- Acceptance: < 10 %
- Charge quite some money as a conference fee



Publish or Perish

*g-index is the largest number such that the top g articles received together at least g^2 citations

E.g. Impact vs Competition

- ICT in Education, Research, and Industrial Applications (**ICTERI**)

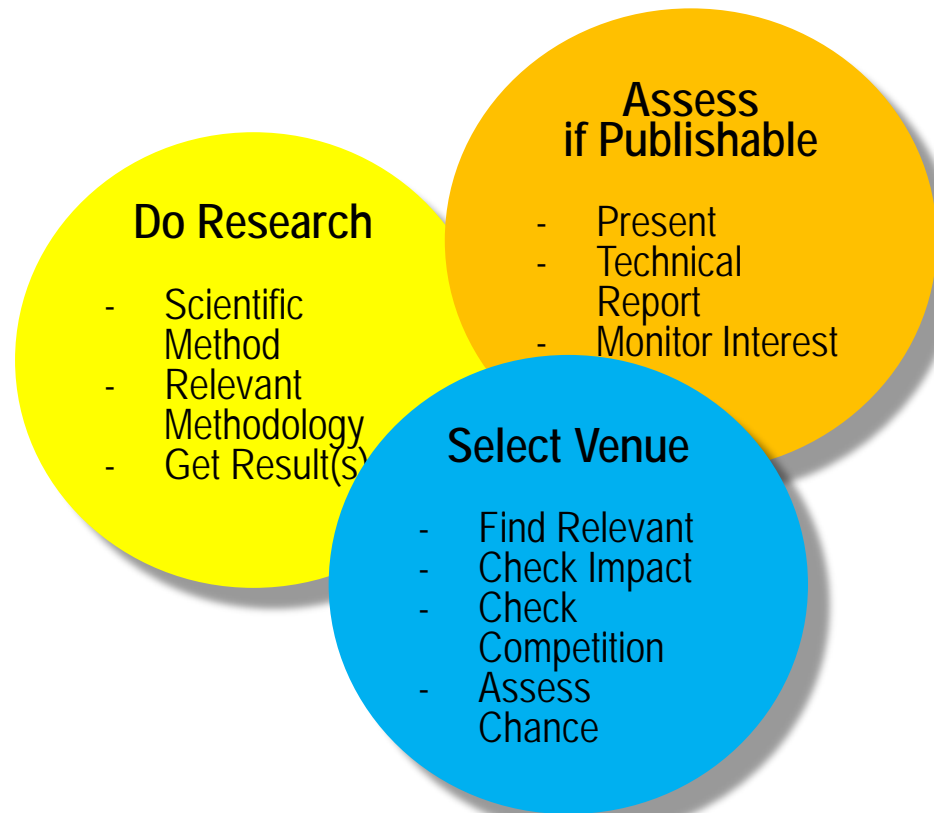
Metrics	Help	Cites	Per year	Rank	Authors	Title	Year
Publication years:	2012-2018	<input checked="" type="checkbox"/> h 27	6.75	1	N Kussul, A Shelestov, R Basarab, S S...	Geospatial Intelligence and Data ...	2015
Citation years:	7 (2012-2019)	<input checked="" type="checkbox"/> h 25	4.17	2	NV Morze, O Kuzminska, G Protsenko	Public Information Environment of...	2013
Papers:	150	<input checked="" type="checkbox"/> h 19	3.17	3	V Kukhareno	Designing Massive Open Online ...	2013
Citations:	470	<input checked="" type="checkbox"/> h 16	4.00	4	H Kravtsov	Methods and Technologies for th...	2015
Cites/year:	67.14	<input checked="" type="checkbox"/> h 15	3.75	5	IP Atamanyuk, YP Kondratenko	Computer's Analysis Method and ...	2015
Cites/paper:	3.13	<input checked="" type="checkbox"/> h 14	2.00	6	E Lavrisheva, A Ostrovski, I Radetskiy	Approach to E-Learning Fundame...	2012
Cites/author:	231.50	<input checked="" type="checkbox"/> h 14	2.00	7	A Kolesnyk, O Slabospitskaya	Tested Approach for Variability ...	2012
Papers/author:	83.85	<input checked="" type="checkbox"/> h 14	4.67	8	OG Glazunova, T Voloshyna	Hybrid Cloud-Oriented Education...	2016
Authors/paper:	2.35	<input checked="" type="checkbox"/> h 12	3.00	11	IP Atamanyuk, YP Kondratenko	Calculation Method for a Comput...	2015
h-index:	11	<input checked="" type="checkbox"/> h 11	1.83	9	VS Kharchenko, O Odarushchenko...	Selecting mathematical software f...	2013
g-index:	14	<input checked="" type="checkbox"/> h 11	3.67	10	A Sachenko, V Kochan, V Kharchenko,...	Mobile Post-Emergency Monitori...	2016
hI,norm:	7	<input checked="" type="checkbox"/> h 10	1.67	12	D Bodnenko	The Role of Informatization in the...	2013
hI,annual:	1.00						
*Count:	0						

- H-index: 11
- G-index: 14
- CORE: C-Conference
- Acceptance: < 50 %, this year – 30 % on average
- Free participation



Publish or Perish

Steps to Note: Pre-Writing



Ingredients

(while writing ...)

To Pay Attention to

- Relevance and Readership
- Structure and Logic (Methodology and Story)
- Background, Approach, and Foreground
- Problem setting, Focus, and Contribution
- Related Work
- Terminology
- Rigor, Evidence, and Evaluation
- Illustrations
- Reproducibility
- Look and Fill (Template and Page Limit)

What is Relevance?

- **RQ:** Why Britons are ~20% taller than Japanese, on average? ...
- Which of the **RA** would be **relevant** for ICTERI?
Why?
 - We looked at what those Nations **eat** – Curry is 20% more energetic than Wasabi **Dietology**
 - We checked the **excavation records** from X century on for those Regions – smaller people had ~20% more chances to survive in Japan **Archeology**
 - We collected **digital medical records** for ~2 decades; we developed **software** to analyze these – Britons are genetically ~20% taller **Computer Science**

Relevance, is it Important?

- Is Dietology your **readership**?
 - Would they **use** (and cite) your **result**?
- As a Computer Scientist, do you **contribute** to Archeology?
- To check **Venue relevance**:
 - Look into the **Scope** (topics of interest)
 - Check the previous **Proceedings**
 - Check the **Program Committee** (your community?)
- **Multi-disciplinary** research ...
 - Check your **focus** and **contribution** vs the **Scope**

Story and Methodology

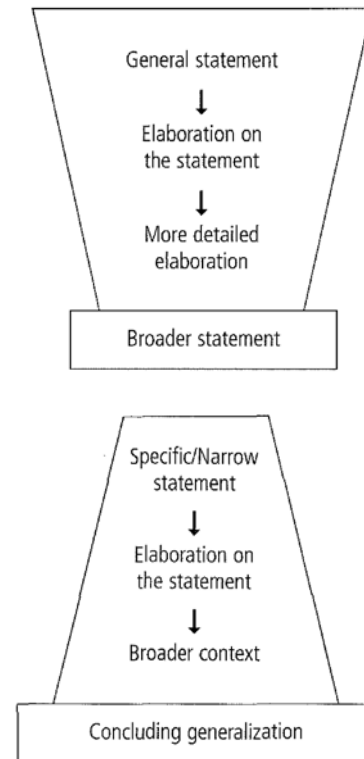
- Present the parts of your text in a **logical sequence** – map your **research workflow** into the paper
- **Why important?**
 - A **reader** expects you follow a **methodology** recognized in your field
- **Pattern:**
 - Situation-Problem-Process-Solution-Evaluation/Proof
 - Explain the **situation** and **motive** to improve it
 - Great if **shared** by your **readership**
 - Explain the **problem** that led to the situation
 - Look around – at the **related work**
 - Describe how your **approach** to the solution
 - Present your **solution** to the problem
 - Present your **evaluation**: was it correct, useful, efficient, effective, accepted by the victims, ...
 - **Conclude, recommend**, and outline your **future work**

Intentional Structuring*

Part I, Topic II

Objective – **guide through** and **keep excited**

- A pattern to **convey your idea** through the narrative
- **General to Specific**
 - Start with a **general** statement / situation
 - Elaborate in **more detail** / specifics
 - Finally, put in the **context** of a **broader** statement
- **Specific to General**
 - Begin with a **specific focus**
 - Progressively become **more general**
- Better **not** to **mix** in one paper



* John M. Swales & Christine B. Feak: Academic Writing for Graduate Students, 3rd Edition: Essential Skills and Tasks, Michigan ELT, 2012 <http://www.press.umich.edu/titleDetailDesc.do?id=2173936>

Partitioning

- What would you feel if you see?:

- Introduction
- Main Part
- Conclusion

Reviewer:

This paper is not properly structured

- Parts become **clear** after defining your logical structure:

- Introduction, perhaps including Motivation
- Related Work
- Problem Setting
- Approach to Solution
 - Background-Transition-Foreground
- Solution (and Discussion)
- Evaluation (and Discussion)
- Conclusions, Recommendations, and Future Work

Departure, Trip, Arrival

- A.k.a. **B, A, F**
 - **Background**: what you had before doing this research
 - **Initial** state
 - **Approach**: how you did it
 - Research **path**
 - Through the **solutions** space
 - One of **many**
 - **Foreground**: what has been achieved
 - **Goal** state
- For example:
 - **B**:
 - Informed that Britons are ~20% taller than Japanese
 - Had clinical data
 - Had programming skill
 - **A**:
 - Developed software
 - Analyzed clinical data
 - **F**:
 - Learned why – genetically

Approach

- Often underestimated, misunderstood, missing
- Not a Methodology
- Explains **how** the Methodology was
 - Chosen
 - Applied
- And **why** that way
- Reasons to choose:
 - The **mainstream** in the field
 - To compare with the Related Work
 - **Known do not help** solve the problem
 - Have to develop a new / improve the existing

Problem Setting

- A **formal** representation of a **situation** to be resolved
 - Got a rock (clinical data)
 - Have the motive (curious)
 - Have some background (coding)
 - Chose the approach
 - E.g.: remove all the unnecessary
- **Anything else?**
- Research **hypothesis**
 - Formally (e.g. a **theorem**)
 - **E.g. Rodin**: if you remove all the unnecessary, then you have a masterpiece



<http://www.scalsys.com/wallpaper/Rock-&-Roll-Wallpaper/view-page-1.htm>



<https://www.nga.gov/collection/art-object-page.1005.html>

Focus

- **Choose as appropriate**
for a conference paper (CS):
 - We demystify the predominance of Europeans over Asians
 - We explain why Britons are taller than Japanese
 - We analyze clinical records
 - to find out why Britons are
 - 20% taller than Japanese
 - ... **Your variant**
(write down to further compare)

Focus

- **Choose as appropriate** for a conference paper (CS):

- We demystify the predominance of Europeans over Asians
- We explain why Britons are taller than Japanese
- We analyze clinical records to find out why Britons are 20% taller than Japanese
- ... **Your variant**



<https://www.sciencedaily.com/releases/2019/05/190521101505.htm>

Focus

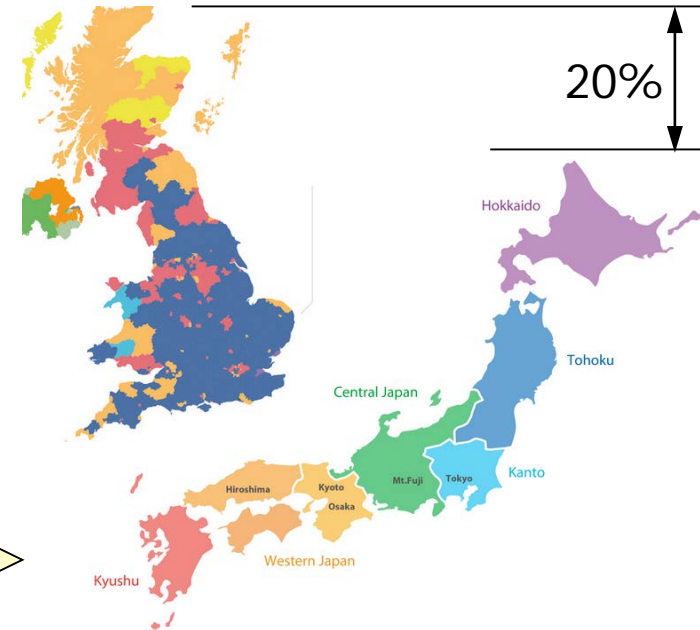
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 - ... **Your variant**



<http://4usky.com/download/164832620.html>

Focus

- **Choose as appropriate** for a conference paper (CS):
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 - ... **Your variant**

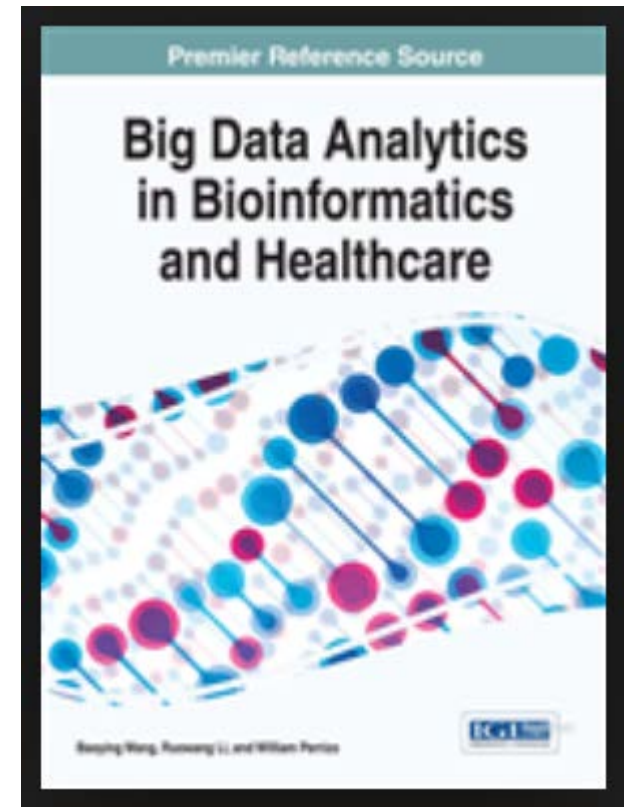


UK: <https://www.letsbebrief.co.uk/the-guardian-the-uk-election-results-map/>

Japan: https://www.123rf.com/photo_97192145_stock-vector-political-map-of-japan-with-regions-and-their-capitals.html

Focus

- **Choose as appropriate** for a conference paper (CS):
 - We demystify the predominance of Europeans over Asians
 - We explain why Britons are taller than Japanese
 - We analyze clinical records to find out why Britons are 20% taller than Japanese
 - Using data analytics and following the XYZ methodology, we analyze the digital DNA records of patients. This data has been collected in the last 2 decades in Britain and Japan. We aim to explain why Britons are ~20% taller than Japanese.

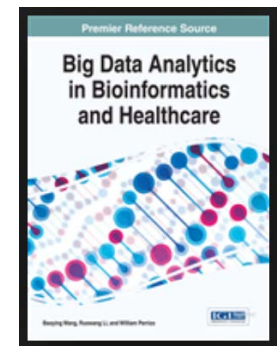
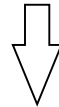


<https://www.amazon.in/Big-Data-Analytics-Bioinformatics-Healthcare/dp/1466666110>

Focus: Aspects

- Disciplinary
- Temporal
- Spatial
- Methodological
- Situational
- Pragmatic

Using data analytics and following the XYZ methodology, we analyze the digital DNA records of patients. This data has been collected in the last 2 decades in Britain and Japan. We aim to explain why Britons are ~20% taller than Japanese.



- To be chosen as **precisely** as possible
- To be cross-checked by **relevance**

Contribution

- Given:
 - The **problem**
 - The **focus**
- **C:** How do you **solve** the problem in focus?
 - Compared to the **Related Work**?
- **C:** Oh, what is **NOT** solved?
 - Equally **important**



<https://www.backmarket.com/refurbished-smartphones.html>



<http://www.freeworldmaps.net/europe/ukraine/political.html>



Recall: Related Work?

Part I, Topic III

- **How would you denote?**
 - The **stuff** in the RW section
 - **Similar work** people did
 - The work by some others, **not helpful**, just related
 - The **results** to which to be **compared** (cross-evaluation)
 - Something by the “**giants**” who will review my work
 - The mentions of the **groups** working on the same / similar problem
 - The mentions of your **own prior work** or the work by your **cooperatives**
 - The mentions of the **members** of your M.Sci / Ph.D committee
 - **Anything missing?**

Related Work?

- **How would you denote?**
 - **Similar work** people did
 - The **results** to which to be **compared** (cross-evaluation)
 - The mentions of the **groups** working on the same / similar problem – **their results**
- **Anything missing?**
 - A **roadmap** to your **idea** and **contribution**

Reasons to Review the RW

- Demonstrate that **you know** what happens in your field
- Showcase the **recent achievements** in your field
- Put your own **work in the context** within your field
- Outline the **highlights and lowlights** of the results by the others
- Tame **your footprint** towards extending the State-of-the-Art – the **contributions**
- List those who do similar things – to **raise their interest**
 - E.g. in **cross-evaluation**
- ...
- L.B.N.L, pay **respect** to your community
 - No matter if they are GIANTS or PEERS
 - To be respected as a **member** of your specialist community ... in return
- **EXAMPLES** ... good and bad reviews – skipped here

Tips to Consider

- All most **up to date** and **influential** to be mentioned – explain the **choice(s)**
- Good to give the evidence of **completeness**
- Analyze, **detect gaps** regarding the **problem**
 - Outline **strengths**
 - Mention **weaknesses / shortcomings**
- Pick the **short list** of the most relevant
 - Compare in more detail – table or diagram
- Outline **your contribution** compared to the RW

Use of Proper Terms

- E.g.: **imitational modeling / simulation modelling**
 - To be: **Simulation**
- E.g.: **own value** (in mathematical sense)
 - To be: **Eigenvalue**
- E.g.: **plurality** (in mathematical sense)
 - To be: **Manifold**
- E.g.: **country in smartphone**
 - To be: **eGovernance**

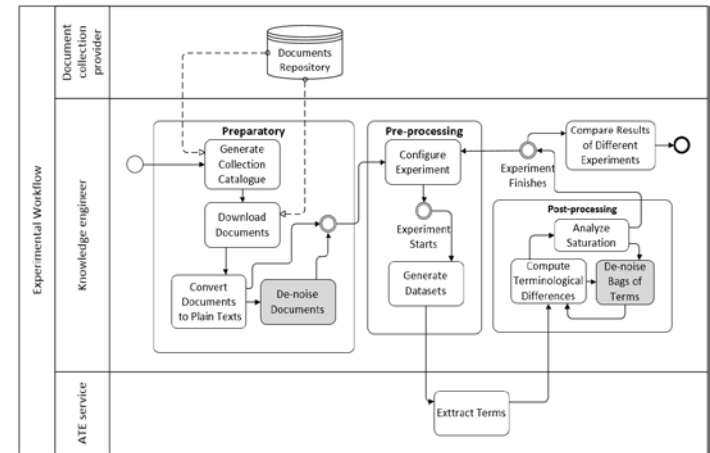
Use of Proper Terms

...

- E.g.: **country in smartphone**
 - To be: **eGovernance**
- Wrong terminology – the **most blatant fallacy**
 - Often interpreted as:
 - Lack of basic education, skills (e.g. English)
 - Lack of professional knowledge
- For having proper terms:
 - Never trust proof-reading companies
 - Read mainstream publications in your field
- Proper terms indicate **rigor** in your work

Rigor

- In CS (science)
 - No room for plurality / ambiguity in interpretation
- Clear formulations
 - Focus, Problem, Method, Solution
- Use of proper notation
 - Formal statements and proofs
 - Diagrams
 - Pseudocode
- A signature of being professional



Evidence

- Does not work in Science
- You have to say **HOW** and **WHY**!
- You have to provide facts that **prove** your declaration

- Examples:
 - A **formal proof** of a statement
 - A **ground truth** that supports the claim
 - An **experimental result** that proves the hypothesis

Does it offer any **evidence**?



It says:

**New Course for Ukraine
Peace and Security**

Julia Tymoshenko

(<http://yahovor.arbat.name/?p=13037>)

Evidence: Example

Formal evidence (proof)*

Lemma 1 (The total frequency of nested occurrences). *The total value of the frequency of nested occurrences, in D , of a term candidate string s in longer term candidate strings ls is the sum of the total frequency values of nested occurrences in all partial collections D_i of D :*

$$tnest(s) = \sum_{ls \in T^s} f(ls) = \sum_{i=1}^n \left(\sum_{ls \in T_i^s} f_i(ls) \right) = \sum_{i=1}^n (tnest_i(s)). \quad (4)$$

Proof. It implies from Definition 2 (of partial c-value), that $tnest_i(s)$ is the total number of occurrences of the term candidate string s in all longer term candidate strings ls extracted from the partial collection D_i . The number of these longer term candidate strings equals to $P(T_i^s)$. Due to the disjointness of the partial collections D_i (Condition 2 of Definition 1), $f(ls) = \sum_{i=1}^n f_i(ls)$. Therefore, and due to the Condition 1 of Definition 1, the total number of occurrences of s in all ls extracted from D is:

$$\begin{aligned} tnest(s) &= \sum_{ls \in T^s} f(ls) = \\ &= \sum_{ls \in T^s} \sum_{i=1}^n f_i(ls) = \sum_{ls \in \bigcup_{i=1}^n (T_i^s)} \left(\sum_{i=1}^n f_i(ls) \right) = \\ &= \sum_{i=1}^n \left(\sum_{ls \in T_i^s} f_i(ls) \right) = \sum_{i=1}^n (tnest_i(s)). \end{aligned}$$

□

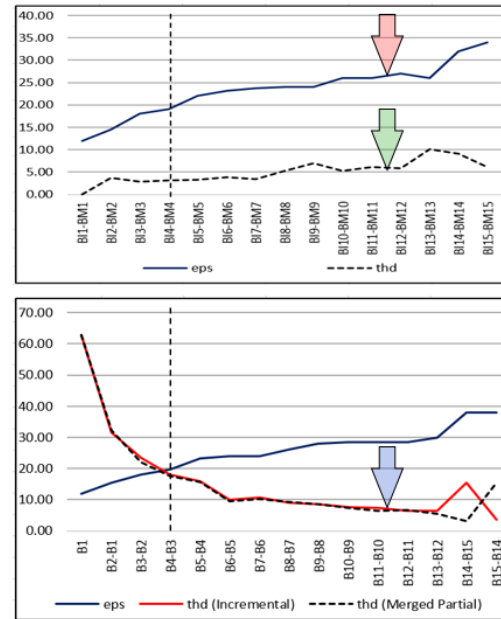
* Kosa, V., Chaves-Fraga, D., Dobrovolskyi, H., Egor Fedorenko, E., Ermolayev, V.: Optimizing Automated Term Extraction for Terminological Saturation Measurement. In: Ermolayev, V., et al. (eds.) ICTERI 2019. CEUR-WS Vol. 2387, pp. 1-16 (2019)

Evidence: Example

Experimental evidence*

Results: Proven Correctness

- In **all** compared Bags of Terms (conv. – vs – merged)
 - **Terminological difference** less than **individual term significance threshold**
 - Also confirmed by superimposed **saturation curves**
- (*h1*) holds **valid**
- **Theorem 1** proven



ICTERI 2019: Optimizing Automated Term Extraction
May 30, 2019

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* Kosa, V., Chaves-Fraga, D., Dobrovolskyi, H., Egor Fedorenko, E., Ermolayev, V.: Optimizing Automated Term Extraction for Terminological Saturation Measurement. In: Ermolayev, V., et al. (eds.) ICTERI 2019. CEUR-WS Vol. 2387, pp. 1-16 (2019)

Evaluation

- What is **Evaluation**?
- Finding if there is a value ...
- Checking if
 - What you **found**
 - Corresponds to the **claim** (what was promised)
- Different **types**:
 - **Formal** – check the proof, find **contradiction**
 - **Experimental** – run / repeat **stuff**, **compare** result
- **Reproducibility** ...



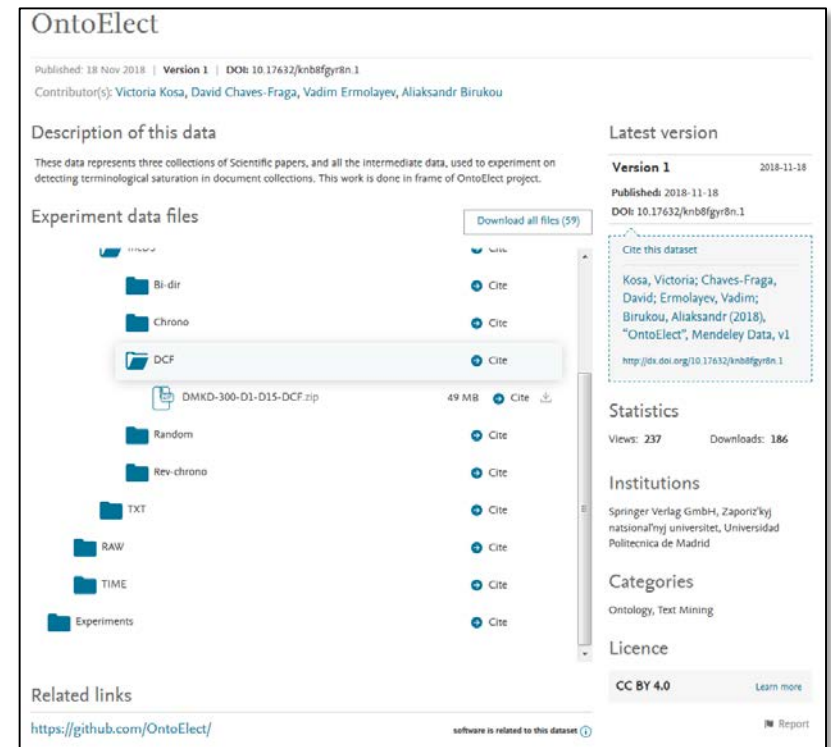
<https://www.wineconnection.com.sg/rioja-vega-reserva.html>

Would you pay € 9.75?
How to find out?

Let Them Do What You Did

- A way to **convince**
- A kind of **evidence**
- An invite for **collaboration**
- A way to **attract** early adopters
- A way to **pay respect**

- E.g.:
 - All **code** and **data** related to our study are available for research purposes.
 - Code: <https://github.com/OntoElect/Code>, available under an Apache 2.0 license
 - Data: <http://dx.doi.org/10.17632/knb8fgyr8n.1>, available under a Creative Commons Attribution 4.0 International license



Evaluation, Fair Play

- Evaluation **findings** to be discussed, in **sufficient detail**:
 - If you **request** evidence
 - Then you have to **provide** evidence, in reply (also **reviewers**)
 - Both to be **sufficient for reproduction**
- E.g.: Rioja Vega Reserva, experimental:
 - I risked € 9.75 (experimental **setting** and **environment**)
 - I invited my 5 best friends (**statistically representative**)
 - We had a wonderful party (**properly measured**)
 - We ordered THREE more (**measurable outcome**)
 - Great value for the price (**objective assessment**)



Types of Illustrations

- What is an **illustration**?
 - A **figure** (chart, picture, etc.);
 - But also: a **table**; an **example**; a **fact**; a **link**
 - A piece that **supports** your **story/statement**
- Which **types** of illustrations are **appropriate**?
 - **All** those above, that help you
 - **Save space** (a look is worth a thousand words)
 - Make your **explanation simple** and **clear**
- Make sure that
 - Use **permissions** are **granted**
 - **Sources** are **mentioned**:
 - Like the above: https://en.wikipedia.org/wiki/A_picture_is_worth_a_thousand_words



1913 newspaper advertisement

Template and Page Limit

- How would you choose your wine?
- Same for your **reviewer**
 - How it **looks**, which implies
 - How it **tastes**
- A paper to look **nobly** and **brandy**
 - Right **template** to be used
 - Label is white – content is right
 - **Page limit** to be strictly obeyed
 - Never pay full price for half a bottle
 - Never > 0.75 l
- Not easy
 - have to **give up** things ...
 - Tell your **Story** and Keep it **Simple** ...



<https://www.etsy.com/hk-en/listing/256035353/liquid-therapy-rough-day-wine-bottle>

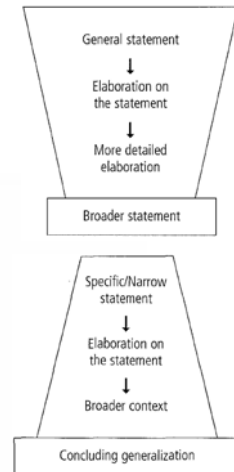
Telling a ...

Exposition

Conflict & Climax

Resolution

Your research
methodology is the
SCENARIO



<https://www.slideshare.net/garr/sample-slides-by-garr-reynolds/>

Keeping it Simple

**“Simplicity is about
subtracting the obvious,
and adding the meaningful.”**

— John Maeda

What to **SUBTRACT**?



https://www.presentationzen.com/presentationzen/2006/11/presentations_a_1.html

It was Easy ... that Far



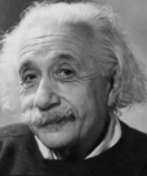
- If you knew the **method**
- If you had some **experience**
- If you had some **resource**
- If you had a bit of **talent**
- And ... if you **did the work**

How would
you achieve
THIS?

- So you **arrived** at ...
- And the **goal** was ...



Rodin and ... the Gang



- Albert **Einstein**

- A German-born **theoretical physicist**
- The **theory of relativity**
 - One of THE two pillars of modern physics



<https://www.express.co.uk/news/science/780101/Dark-matter-mystery-deepens-DROUGHT-universe>

- A **3 step** procedure: ...

- 1. Take a **Universe**
- 2. **Think**
- 3. Write ...

How
to learn
THIS?

The equation E=mc^2 written in white chalk on a blackboard.

Yeah, ... the Tips ...

- Find a **Super Star** in your field
 - Take your **time**
 - **Observe** how s/he does
 - **Learn**
 - **Try**
 - ... **Suffer** ...
 - Do not **mimic**
 - Be **yourself**
 - Become a **SUPER NOVA**
-
- Perhaps, the **only** feasible **way** is ...

Apprenticeship,
Aspiration,
and Responsibility

Sorry, that
ABSTRACT

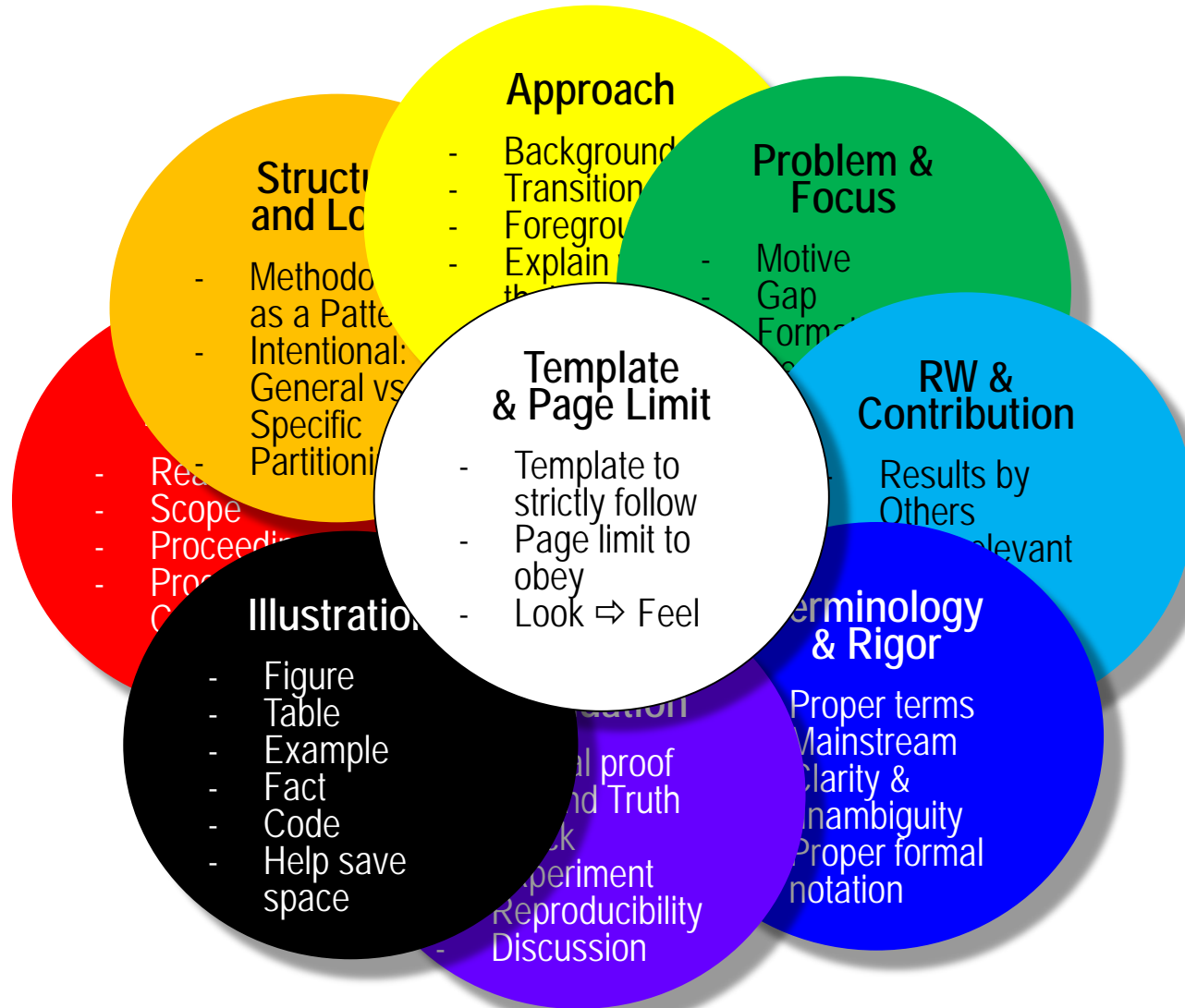
“It’s taken me all my
life to learn what
not to play.”

— Dizzy-Gillespie



<https://www.slideshare.net/garr/sample-slides-by-garr-reynolds/>

Steps to Note: While Writing



Beaujolais Nouveau or Rioja Reserva?

(after writing ... did the paper happen?)

Check the After-Taste ...

- After some time passed are you still **happy** about your paper?
- Do colleagues **read** it?
- Do they **cite** it?
- May well surprise you ...

My Surprises

Book Full-text available

Proc. 11th Int. Conf. on ICT in Education, Research and Industrial Applications: Integration, Harmonization and Knowledge Transfer

May 2015

Research Interest 25.6

Research Interest 25.6

Citations 0

Recommendations 1

Article Private full-text

Towards a Framework for Agent-Enabled Semantic Web Service Composition

January 2004

Research Interest 38.5

Research Interest 38.5

Citations 76

Technical Report Full-text available

Cross-Evaluation of Automated Term Extraction Tools

September 2017

Report number: TS-RTDC-TR-2017-1 · Affiliation: Zaporizhzhia National University, Ukraine

Projects: [SemData: Semantic Data Management](#) · [OntoElect: a Methodology for Domain Ontology Refinement](#)

Lab: [Intelligent Systems](#)

Victoria Kosa · David Chaves-Fraga · Dmitriy Naumenko · Aliaksandr Birukou

Research Interest 9.5

Research Interest 9.5

Citations 4

Recommendations 0

Reads by RG members 71

- Full-text reads 39
- Other reads 32

This item's Research Interest is higher than 79% of research items on ResearchGate.

https://www.researchgate.net/profile/Vadim_Ermolayev/research

Steps to Note: After Writing



Final Remarks

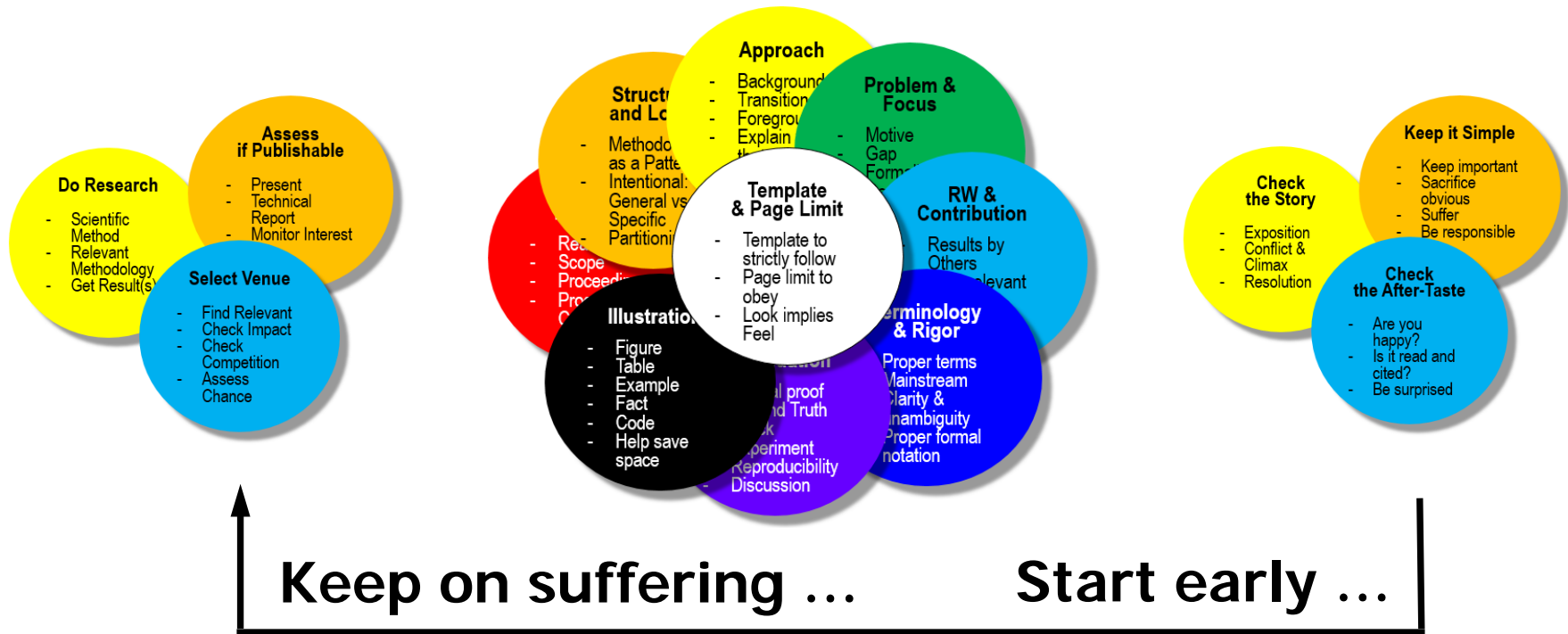
Putting All Together

You have to work hard

Before writing

While writing

After writing



Anything else to add?

Start Early: Master Students

1st Masters Symposium on Advances in Data Mining, Machine Learning, and Computer Vision (MS-AMLV 2019)

November 15-16, 2019, Lviv – Ukraine



Proceedings: [CEUR-WS](#)

Venue: Ukrainian Catholic University

Information: <https://apps.ucu.edu.ua/en/masters-symposium-amlv-2019/>

Submission: <https://easychair.org/conferences/?conf=msamlv2019>

- Monday, 16.09.2019 – paper abstract submission deadline
- Monday, 30.09.2019 – paper submission deadline
- Tuesday, 05.11.2019 – acceptance notification
- Monday, 14.11.2019 – camera-ready papers submission deadline
- Monday, 14.11.2019 – registration deadline
- Friday, 15 – Saturday, 16.11.2019 – symposium days

Yeah, if You Still WannAdvise

“Master your instrument.
Master the music. And then
forget all that bullshit
and just play.”

—Charlie-Parker

Reading

Basic Reading

- A book that covers almost all the material in this course, including paper writing:
 - Justin Zobel: Writing for Computer Science. Third Edition. Springer London Heidelberg New York Dordrech (2014)
- Tutorials:
 - Nikolaj Tatti: The data scientist's guide for writing papers. Department of Computer Science, Aalto University (2016)
 - Vadim Ermolayev: Do Not Let Them Trash Your Paper! The Alchemy for Higher Chances to be Accepted. ICTERI 2019 Tutorial (2019)
- Please also learn by:
 - Looking at appropriate examples:
 - E.g.: Georgios Varsamopoulos: How to Write a Technical Paper: Structure and Style of the Epitome of your Research (2004)
 - Trying yourself
 - Suffering

Additional Reading

- **Scientific method:**
 - **Dodig-Crnkovic, G.:** Scientific Methods in Computer Science. Proc Conf for the Promotion of Research in IT at New Universities and at University Colleges in Sweden (2002)
 - <http://www.mrtc.mdh.se/publications/0446.pdf>
- Several bits referenced in the slides

**Will be happy
to answer
your questions ...**

Will be also happy to continue discussions

vadim@ermolayev.com

