

# Academic / Technical Writing

in Computer Science

## Topic 1: An Introduction into Academic Writing in CS/DS



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M.Sci Programme in CS - DS



# Myself ...

- **Knowledge Engineer**
- 20+ Y R&D Experience in
  - Semantic Web and Semantic Technologies
  - Agent-Based Systems
  - Ontology Engineering and Management
  - Ontology Learning, also from texts
- Assoc. Prof. at Zaporizhzhia Nat. Uni. (ZNU), Dept of CS
- Visiting Prof. or Research Fellow at various locations
- Founder, Intelligent Systems Research Group at ZNU
- Research Consultant: e.g. Cadence Design Systems, etc.
- Expert: e.g. European Commission, DG Information Society & Media
- More:
  - **Personal** web site
  - **LinkedIn** Profile

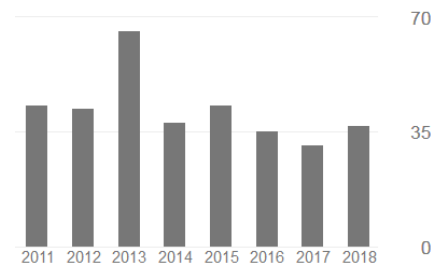


# Re Academic Writing?

- Has authored / edited quite some:
  - Technical reports (international projects)
  - Workshop and Conference papers
    - top international venues – e.g. ISWC
  - Journal Papers
  - Books
  - 100 % acceptance rate in the last several years
- Yeah, authored my M.Sci and Ph.D. theses
  - Also supervise(d) M.Sci and Ph.D. students
- Did not publish in languages other than English
  - Since the last century
- Details:



Citations	714	250
h-index	14	8
i10-index	24	6



- **Google Scholar:**

- <https://scholar.google.com.ua/citations?hl=en&user=vaOHuLQAAAAJ>

- **ResearchGate:** [https://www.researchgate.net/profile/Vadim\\_Ermolayev](https://www.researchgate.net/profile/Vadim_Ermolayev)

- **ORCID:** <https://orcid.org/0000-0002-5159-254X>

- **Scopus:** <https://www.scopus.com/authid/detail.uri?authorId=13104107100>

# You are Actively Involved

What this means:

- Feel free to **stop me any time** for
  - Asking a question
  - Debating a statement
- When you see anything **red** in a slide:
  - You have think and react – e.g. answer
  - I will not move further without your reaction

# Plan

- The **structure** of the **course**
- **Why** professional (academic) writing?
  - **Why do I write this manuscript?**
- Is it an **important skill** for a Computer / Data Scientist / Professional?
- The (general) **rules of the game**
  - How does academic (formal) writing differ from the other genres?
- **Learning outcomes** to be expected
- (re)Sources for **reading**

# Credits

- An good textbook by professional linguists on the tips for and style of academic writing:
  - 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>
- A collection of useful tips for academic writing
  - James A. Bednar: Tips for Academic Writing and Other Formal Writing. <https://homepages.inf.ed.ac.uk/jbednar/writingtips.html>

# Structure of the Course

# Focus and Context

- Short **M.Sci-level** course
- **Focus:**
  - Tips that help
    - Express your structured thoughts in scientific and technical writing
    - Convey these thoughts effectively to your readership
  - Help students increase their proficiency in writing and presenting
- **Coverage:**
  - Why is academic writing an important skill for a Computer / Data Scientist / Professional?
  - What are the specifics in authoring a technical report?
  - How to work with and review relevant literature?
  - How and when to plan and write a thesis?
  - How to learn to write a good workshop or conference paper?
  - How to structure, plan, and develop your talk?
  - Is academic writing a scientific methodology, in Computer Science?



# DO NOTs and DOs

- This course does NOT:
  - Cover ~~speaking skills and rhetoric~~ as those are worth separate courses
  - ~~Teach English~~
- This course does:
  - Concentrate on **professional context** – in English
  - Offer you a **good practice** methodology for academic **writing** – for a relevant **purpose**
  - ... and a bit of **presenting**

# Pre-requisites

- Appropriately good **written** and **spoken** command of (professional) English
  - What is **appropriately good**?
    - **Writing**: Be able to write in English – not to translate from the text in your native lingo
    - **Speaking**: Be able to express yourself without reading from notes
- Basic knowledge of **research methodologies** in Computer Science

# Types of Learning Activities

- **Lectures**
  - 8 lecture topics
  - 2 parts
- **Course Assignment**
  - Individual work
  - Write a workshop / conference paper

# Lecture Topics

- **Part 1:** Fall 1<sup>st</sup> year
- **T1:** An Introduction into Academic Writing
- **T2:** Planning and Structuring Your Manuscript
- **T3:** Working with Literature. A Review of the Related Work.
- **T4:** Writing a Technical Report
- **Part 2:** Summer 2<sup>nd</sup> year
- **T5:** Writing a Thesis
- **T6:** Writing and Publishing Papers. How to Learn to Write a Good Paper.
- **T7:** Talking and Presenting
- **T8:** Overview and Summary

# Course Assignment

- Writing a **short** conference or workshop **paper** based on your M.Sci project results
- A full blown single-blind **peer review** process
- Students play **2** different **roles**:
  - The **authors** of their papers
  - The **reviewers** of the peers' papers
- The authors of the accepted papers will also be tasked to prepare the **presentation** of their paper
  - To be also **reviewed** using the same approach
- Based on the results of the reviews, the **recommendations** will be given about the **potential venues** for the accepted papers
- **Result**:
  - The **ranked list** of the papers with the scores from 0 to 100
  - Your **grade** for the course

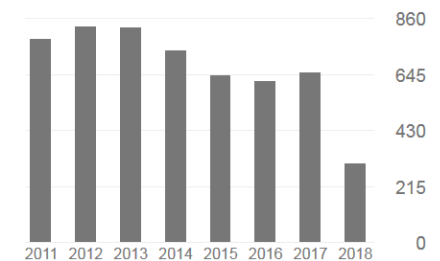
**Why ... do I  
Write this  
Manuscript?**

# Motives ...

- “Let us first **deliver** and then ... we might **wish to write** a couple of papers ...”
  - Prof. Hans Akkermans, BI, VUA said at EU project meeting (last century)
  - One of the “giants” in CS
- What is **h-index**?
- Why we might “**wish to write**”?
  - Getting a **result** is important, not **writing** ...



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



# A Pathway to a Solution

- Written texts, like professional papers, are for ...
- **Readers**
  - Who are looking for a solution of **their** problem
- Hence, your **manuscript** is ...
- 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 would like to **convey my results** to professional readers
- I would like my fellow peers to **cross-evaluate** my results with theirs
- I would like to put all bits and pieces of my brain dump in a **proper structure and order**
- I would be happy to **transfer** my solution to the professional **community**, including **industry**
- Yeah, I will be happy to **impact** the technology
- Hoh, I d also like to **be cited** ;-)
- Last but not least, I have to do it **anyway** ... as the **partial fulfilment** ...
- Yet more, I'm **appraised** based on what I write and publish

# Poor Reasons to Write

- I need to write a paper. I will **then know what to do** in my project ...
  - Exactly on the contrary ... Hans Akkermans
  - Project **proposals** are exactly for that
- I just dream to be **famous** ...
  - You'd better **write fiction** then ...
- My **supervisor** tasked me to do so ... on her behalf
  - Oh, if she wants to get published, **let her write** ...  
Teamwork is a different thing.
- **More reasons that brought you here?**

**In Computer  
Science?  
Data Science?**

# Is Writing Relevant in CS?

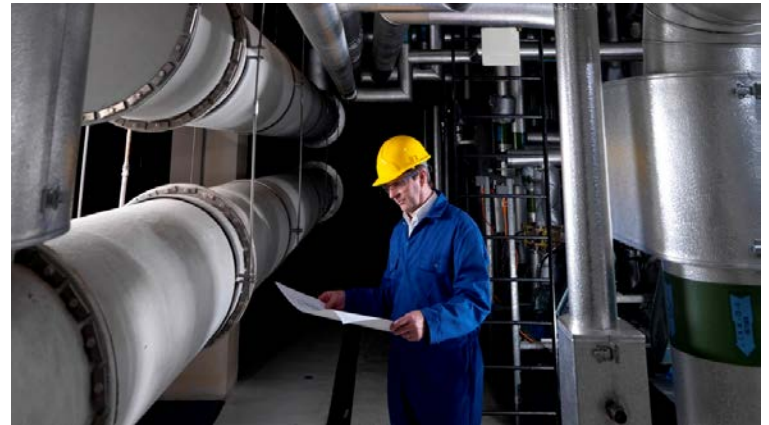
Are Computer  
Scientists  
**ENGINEERS?**

# Pitfalls in CS – an Outline

- Is **Computer Science** an engineering discipline?

Professional engineers are **regulated**, certified, **licensed**, and subject to **apprenticeship** and continuing education.

Engineering claims an explicit responsibility to **public safety** and **reliability**, even if it doesn't always deliver.



Ian Bogost: **Programmers: Stop Calling Yourself Engineers**. The Atlantic, Nov 5, 2015  
<https://www.theatlantic.com/technology/archive/2015/11/programmers-should-not-call-themselves-engineers/414271/>

# Are C-Scientists– Engineers?

- Are Computer Scientists:
  - Regulated?
  - Licensed?
  - Do continuing education?
  - Subject to apprenticeship?
- Are Computer Scientists responsible:
  - For public safety?
  - For the reliability of their outputs?
- Perhaps ... Not
- **Would writing competence help?**



# Is Writing Relevant in DS?

Are Data  
Scientists  
**ENGINEERS?**

# Would Writing be Helpful?

- Make you subjEct to **apprenticeship**
  - You **learn** from experts, they **review** your work
  - Getting rejected is often more **educative** than getting accepted
- Make you more **responsible**
  - Making your output public forces to think and check
- Make your results more **reliable**
  - Take for **granted**: the peers will point out your **faults**, publicly



# The Rules and Traditions of the Game

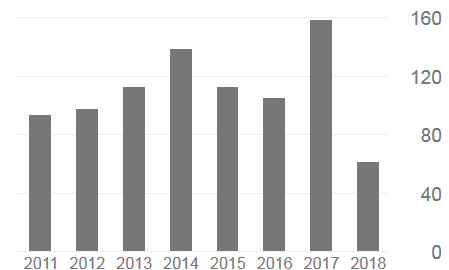
Just Outlined

# What is Formal Writing?

- Academic Writing
  - A kind of **Formal Writing**
- Used in **academic** and **scientific** settings
- A way to **convey your ideas**:
  - To a wide [professional] audience
  - Many, [possibly varying,] backgrounds and assumptions
- Unlike casual conversation or emails to friends, formal writing needs to be:
  - Clear
  - Unambiguous
  - Literal, and
  - Well structured



	All	Since 2013
Citations	1557	686
h-index	21	14
i10-index	31	18

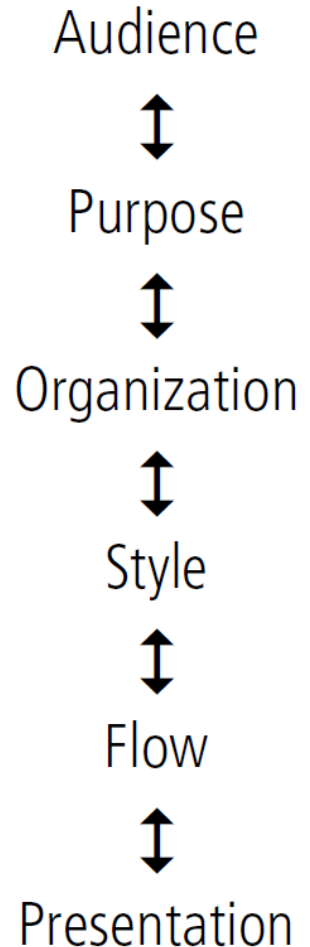


James A. Bednar: Tips for Academic Writing and Other Formal Writing.

<https://homepages.inf.ed.ac.uk/jbednar/writingtips.html>

# Aspects to Consider\*

- **Audience:** who is your target **readership**?
  - Familiar professionals vs broader (unfamiliar) public
  - Affects the content of your manuscript
- **Purpose:** what is your **objective** in this paper, regarding the audience?
  - E.g. instruct (textbook), convey results (research report/paper/thesis), survey (review), position (visionary paper) ...
- **Organization: structure** that is appropriate for the particular type of text
  - Texts of different types have regular, predictable **patterns** of organization
  - **External:** parts, chapters, sections, subsections
  - **Internal:** situation, problem, solution, and evaluation



\* 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>

# Aspects to Consider\*

- **Style:** the **manner** of your use of English
  - E.g. formal vs informal
  - Important to know what is considered **academic** and what is not
    - Academic style differs from one area of study to another
    - E.g. for spoken academic English, check MICASE at [www.elicorpora.info/](http://www.elicorpora.info/)
  - Largely **out of our scope**
- **Flow:** moving from one (logical) statement in a text to the next
  - Establish a clear connection of ideas
  - Help a reader follow the text
  - E.g. follow a **progression** from **old** or given to **new** information
  - E.g. establish the **logical connection**, the linking word, such as: however, hence, therefore, etc.
- **Presentation:** format and language use
  - Is your manuscript properly formatted and typeset?
  - Is your English indeed English regarding terminology, spelling, grammar homophones, etc.
  - Largely **out of our scope**



\* 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>

# Expected Learning Outcomes

# What you will Learn

## Part 1

- Is academic writing an important skill to master?
- Rules and Traditions
- How to plan and structure your manuscript
- How to review the related work
- How and why to write a technical report

## Part 2

- How to write your thesis
- How to write papers and be accepted
- How to present your work
- A methodology for effective and efficient academic writing

# Reading

# Basic Reading

- Basic reading will be recommended specifically for each Lecture Topic
- For the intro:
  - 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>
    - This book provides some very good models of academic writing and some useful hints on academic style, including extensive exercises



# The Course ClipBoard

The screenshot to be placed here

- UCU Course Management System
  - [https://](https://open.ucu.edu.ua/)
  - <http://open.ucu.edu.ua/>

# Additional Reading

- Recommendations will also be **topic-specific**
- For the intro:
  - **Murray, N.:** Writing Essays in English Language and Linguistics, Cambridge University Press, 2012
    - <http://search.ror.unisa.edu.au/media/researcharchive/open/9915909594701831/53108515070001831>
    - This is a good guide to essay, project, and report writing at university level. It is useful as a self-study tool, both for undergraduate and postgraduate students. The 'try it out' sections are particularly helpful for developing practical writing skills.
  - More notable literature:
    - <https://warwick.ac.uk/fac/soc/al/globalpad/openhouse/academicenglishskills/writing/eapbooks/>

# Final Remarks

# What We Learned ...

- What are the focus, structure and context of the course
  - Why writing is inevitable in research settings
    - Why you need to master this skill
  - What are the rules and traditions in academic writing
    - How it differs from the other genres of writing
  - What are the aspects to be taken into account in academic writing
  - What are the learning outcomes that you may expect
  - What are the resources for reading and exercising
- 
- **Next topic:** Planning and Structuring Your Manuscript for the Purpose

# Will be happy to answer your questions ...

Will be also happy to continue discussions

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