National Technical University of Athens

Acknowledging other people's work: Citing and referencing

Week 4

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From last week's task: continuum

- Original Text:
- Most engineering work is concerned with the macroscopic or bulk behavior of a fluid rather than with the microscopic or molecular behavior. In most cases it is convenient to think of a fluid as a continuous distribution of matter or a continuum.

- Paraphrase (part):
- The majority of engineering research approaches fluids as a macroscopic model rather than as a microscopic one. Generally, a good practice is to consider fluids as a continuous distribution of matter or a continuum.

From last week's task: continuum

- Original Text:
- Most engineering work is concerned with the macroscopic or bulk behavior of a fluid rather than with the microscopic or molecular behavior. In most cases it is convenient to think of a fluid as a continuous distribution of matter or a continuum.

- Paraphrase (part):
- It is common practice among engineers to focus on the macroscopic or bulk behaviour of fluids and ignore the microscopic or molecular phenomena. Considering fluids as a continuum, that is, as continuously distributed in space, is usually more useful.

From last week's task: continuum

- Original Text:
- Most engineering work is concerned with the macroscopic or bulk behavior of a fluid rather than with the microscopic or molecular behavior. In most cases it is convenient to think of a fluid as a continuous distribution of matter or a continuum.

- Paraphrase (part):
- In a great deal of work conducted by engineers more attention is paid to the microscopic or molecular behaviour. It is often easier to consider fluids as a continuous distribution of matter or a continuum.

From last week's task: continuum

- Original Text:
- In most cases it is convenient to think of a fluid as a continuous distribution of matter or a continuum.

- Paraphrase (part):
- Considering fluids as a continuous distribution of matter or a continuum is widely preferred because of its simplicity.
  - The words "convenient" and "simplicity" are not synonyms.
  - "Is widely preferred" and "in most cases" are fine.

From last week's task: continuum

- Original Text:
- In most cases it is convenient to think of a fluid as a continuous distribution of matter or a continuum.

- Paraphrase (part):
- This means that we do not have to concern ourselves with its microstructure or molecular composition.
  - Personal reference ("we", "ourselves") changes the style of the original to a more informal one, which might be suitable in some cases, but not in the context of, say, a Diploma thesis.

From last week's task: continuum

- Original Text:
- In most cases it is convenient to think of a fluid as a continuous distribution of matter or a continuum.

- Paraphrase (part):
- Considering a fluid as a continuous distribution of matter or a continuum is easier to understand.
- For this reason, they prefer defining fluid as …
  - The clauses in red are not synonymous; the meaning of the original is altered.

From last week's task: continuum

- Original Text:
- Most engineering work is concerned with the macroscopic or bulk behavior of a fluid rather than with the microscopic or molecular behavior.

- Paraphrase (part):
- The majority of engineers are not interested in a fluid's microscopic or molecular behaviour but rather in its macroscopic or bulk behaviour.
- The main field that engineers are focused on is…
  - The clauses in red are not synonymous; thus, the paraphrased clause alters the original meaning.

Simple definition based on information from a text

- In Fluid Mechanics a continuum is defined as a fluid that can de described through differential calculus thanks to the relative lack of complexity in the variation of its properties.

- Continuum is used to refer to an ideal fluid whose molecular properties can be easily analysed by differential mathematical approaches.

Simple definition based on information from a text

- The summary of this text explains that ….
  - Since the point of the task was to write a simple definition and not a summary of the original, this is not an appropriate way to begin.

Simple definition based on information from a text

- Original text:
  - Such a fluid is called a *continuum*, which simply means that its variation in properties is so smooth that differential calculus can be used to analyze the substance
- Paraphrase:
  - Continuum is a liquid whose properties are constantly changing in space. More analytically a continuum is a fluid whose smooth variation in its properties enables the use of differential calculus for the analysis of the substance.
  - "are constantly changing in space": too vague and uninformative.
  - "More analytically" → more specifically
  - "smooth variation in its properties enables the use of differential calculus for the analysis of the substance" : too close to the original, therefore, not an acceptable paraphrase.

Simple definition based on information from a text

- Original text:
  - Such a fluid is called a *continuum*, which simply means that its variation in properties is so smooth that differential calculus can be used to analyze the substance
- Paraphrase:
  - Continuum is a scientific expression which is used in the field of Fluid Mechanics. It gives the information of how easy it is to estimate a matter's value.

  - "Continuum is a scientific expression which is used in the field of Fluid Mechanics" : not an appropriate definition; the clause "is used in the field of Fluid Mechanics" does not define the term.

References

- For this presentation, the following sources were used:

  - Gillett, A., Hammond, A. & Martala, M. (2009). *Inside Track to Successful Academic Writing*. Harlow, Essex: Longman Pearson Education.
  - Robinson, M. S., Stoller, F. L., Costanza-Robinson, M. S. and Jones, J. K. 2008. *Write like a chemist: a guide and a resource*. New York. Oxford University Press.
  - Wallwork, A., 2016, *English for Writing Research Papers*, 2nd.ed., Springer, Heidelberg, pp. 185-196.

Plagiarism

- Remember that when you include another researcher's original ideas without properly acknowledging the source, you commit plagiarism.

Citations

- A citation is an authoritative source referred to in the text to indicate work that has influenced the current work or that provides essential background information.

- Citations are, therefore, used in the body of the text.

References

- References appear at the end of a document or section and take several forms.
  - In a numbered system, references are listed in the order of appearance in the text.
  - In an author–year system, they are listed alphabetically.
- A reference list must include all the works that are mentioned in the text.
- References allow the readers to find a specific source so they include all the details that are necessary to locate it.

Bibliography

- A bibliography is an alphabetical listing of sources that were consulted in the writing of a document.
  - They do not necessarily all need to be mentioned in the body of the text.

Primary literature

- The primary literature comprises peer-reviewed publications that describe results of original research. In general, these publications are the first and most authoritative sources.
- The primary literature includes:
  - peer-reviewed journals,
  - technical reports,
  - edited books, and
  - other publications that present original ideas and research.

- General information sources (e.g., textbooks) are not part of the primary literature.

Peer-reviewed journals

- **Refereed/Peer-reviewed journals** include only articles that have made it through a rigorous peer-review process.

- In this process, a submitted manuscript is critically reviewed by two or more anonymous reviewers who are experts in a field.
- The reviewers are asked to comment on both the scientific merit and writing quality of the manuscript.
- Authors are often required to revise their work before it can be accepted for publication.

- Based on the reviewers' remarks, journal editors decide to accept, accept with revisions, or reject each submission.
  - The entire review process can take six months or longer.
- An account of the review process typically appears in the published article. For example:
  - Received for review March 9, 2008. Revised manuscript received August 3, 2008. Accepted August 5, 2008.

- Once published, the journal article becomes part of the primary literature in a field.

Scientific databases in engineering

- To find peer-reviewed articles, you can search scientific databases such as:
  - American Chemical Society Publications
  - ASME digital collection
  - IEEE Xplore - IEEE/IEE electronic library online
  - ScienceDirect.
- For a complete list, see here:
  - http://lib.ntua.gr/?page_id=70
  - https://www.lib.washington.edu/engineering/resources/englibdb
- You need to be cautious with general Internet search engines, such as Google, because they do not limit searches to the primary literature.

The arXiv database

- "arXiv is a free distribution service and an open-access archive for 1,861,533 scholarly articles in the fields of physics, mathematics, computer science, quantitative biology, quantitative finance, statistics, electrical engineering and systems science, and economics. Materials on this site are not peer-reviewed by arXiv".
  - Owner : Cornell university.
  - https://arxiv.org/

- Given that it is not peer-reviewed, you can consult work published here, but you will probably not be able to use it in your Diploma thesis.
  - You ought to consult your supervisor on this.

Citations: introduction

- Although they are formatted in different ways, citations serve the same purposes in every research field:
  - Acknowledging others' works.
  - Enhancing the writer's credibility.
  - Placing the current work into a broader context.
  - Making it easy for readers to locate cited materials.

Section with the largest number of citations

- The largest number of citations are found in the Introduction sections of theses and dissertations, journal articles and research proposals.
- On average, introductions of research papers often include 15 or more citations in opening paragraphs (often with multiple citations in a single sentence) (e.g. [1-3]).

- New citations, and repeated citations to works that were first mentioned in the Introduction, appear in other sections of the journal article, but with far less frequency.

- For journal articles, (after the Introduction) the next section with the largest number of citations is typically the Discussion section; sometimes the Results and the Discussion sections are merged into one:
  - here, citations are needed as authors interpret their data in light of the existing literature.

- Not surprisingly, the smallest number of citations is typically found in the Methods section, where authors focus largely on their own work.

How many sources in total should you cite in your written work?

- It really depends on the genre.

- The largest number of citations is found in theses and dissertations, followed by journal articles and research proposals.
  - This number is also influenced by what is judged as appropriate to cite in each genre.

- In journal articles, only essential works (i.e., those that have critically influenced your research) are cited; marginally relevant works are generally not cited.

- For writing a thesis, you need to:
  - read widely, but cite only the most relevant works,
  - only cite information (e.g., methodologies, results) from the primary literature.

Example of content that is too general to cite and content that needs to be cited.

- *Not cited*
  - The existing methods for the removal of heavy metals from the environment can be grouped as biotic and abiotic. Biotic methods are based on the accumulation of heavy metals by plants or microorganisms; abiotic methods include physicochemical processes such as precipitation, coprecipitation, and adsorption of heavy metals by a suitable adsorbent.
- *Cited*
  - Among the different adsorptive materials that have conventionally been used to capture metal ions from solution are activated charcoal (*2*), zeolites (*3*, *4*), and clays (*5*).

- *Not cited*
  - However, coffee beverages are complex mixtures of several hundred chemicals that either occur naturally or are later induced in coffee by the roasting process in the form of nicotinic acid or melanoidins.

- *Cited*
  - Coffee, in particular roasted coffee, has been found to act as a potent antioxidant and to inhibit lipid peroxidation both in chemical (*1*) and in biological systems in rat liver microsomal fractions (*2*).

Chemical engineering paper

- *Not cited*
  - Common oxidizing agents include chlorine, ozone and hydrogen peroxide. Wet oxidation, where the oxidizing agent is either air or oxygen, and electrochemical oxidation, where an electrical current is used to force the redox reaction to occur, are both also commonly used treatment methods.

- *Cited*
  - Chemical oxidation is a highly effective treatment process for a wide spectrum of organic pollutants [67–100], although it tends to be less effective at treating inorganic pollutants including both heavy metals and dissolved minerals and salts [86].

Article title: "Engineered nanomaterials for water treatment and remediation: Costs, benefits, and applicability"

Electrical and computer engineering paper

- *Not cited (and cited)*
  - Gaited or non-gaited walking is generated by alternating phases of contact creation and breaking with the environment [1]. With rigid links and without shock absorbing mechanism, impact forces with the ground must be thresholded through contact transitions with nearly zero speed. This considerably limits the walking dynamics. Therefore, compliant mechanisms are used in humanoid robotics to absorb shocks at impacts and prohibit their propagation along the entire structure that results in non-desirable vibrations and eventually unstable behaviors.
- *Cited*
  - One common solution is to add flexible mechanisms at the robot ankles [2,3] that also protect the feet embedded force sensors. Unfortunately, such compliant mechanisms also act as passive joints whose deformations are hardly measurable [4].

Article title: "Optimized humanoid walking with soft soles"

Mechanical engineering paper

- *Not cited*
  - In mechanical engineering, reverse engineering has evolved from capturing technical product data, and initiating manual redesign procedure while enabling efficient concurrency benchmarking to a more elaborated process based on advanced computational models and modern digitizing technologies.

- *Cited*
  - Recent research is focusing more on the convergence of reverse engineering, metrology, and software for additive manufacturing-related applications [1-3].

Article title: "From reverse engineering to shape engineering in mechanical design"

Mining and metallurgical engineering paper

- *Not cited*
  - Dust in the ventilation air poses a health risk and has negative influence on working conditions. Another hazard related to the presence of mine dust - explosion hazard - results from its flammable properties.

- *Cited*
  - The issues concerning the influence of dust on the health and the life of people employed in the mining industry constitute a serious problem [4] both in Poland and in the world [5].

Article title: "Continuous dust monitoring in headings in underground coal mines"

Naval Architecture and marine engineering paper

- *Not cited*
  - Ship stability is undoubtedly a subject of paramount importance in the field of Naval Architecture, its fundamentals having wider implications for the design and operation of ships and floating units. Moreover, "stability" is a concept which, in Naval Architecture, has a very wide meaning, embracing ship stability fundamentals with ship dynamics and ultimately ship safety.
- *Cited*
  - With regard to SGISC, continuously updating overviews of development and general discussions have been provided over time [1-7], showing the evolution of the framework.
    - Second Generation Intact Stability Criteria (SGISC).

Article title: "Ship stability, dynamics and safety: Status and perspectives from a review of recent STAB conferences and ISSW events"

- An example for the use of citations.

In-text citations

Conventions in scientific writing

- In scientific writing, multiple conventions exist for citations and references.
- Two common examples are a numbered system and an author-year system.

- In-text citations:
  - Numbered system: only a number is used which corresponds to a source that is detailed in the references.
  - An author–year system, provides the surname of the writer(s) and the date (how current the information is). Here, this information is usually placed within brackets.

- Some of the most common citation systems are:

- *Author-date systems:*
  - American Psychological Association (APA).
  - Modern Languages Association (MLA).

- *Numbered systems:*
  - American Chemical Society (ACS).
  - American Society Of Mechanical Engineers (ASME).
  - Institute of Electrical and Electronics Engineers (IEEE).

Be consistent: don't mix citation systems

- Jones (2018) argues that two common examples are a numbered system and an author-year system. Two common examples are a numbered system and an author-year system [1].

- In the above example an author-date and a numbered system, are both used in the same paragraph.

- Use only one system and be consistent with it!
  - Your supervisor will inform you as to which system you are supposed to follow.

How to use in-text citations in numbered systems

- Citations:
  - They take the form: (1,2) or [1].
  - They're only found in the body of a text.
- References:
  - They provide important details for the sources mentioned in the body of the text : author name, title of book or research article, publisher and place or publication or journal title.
- There's a one-to-one correspondence between citations and references. All the citations in the body of the text must appear in the reference list.

Secondary referencing: author-date

- It relates to those cases when an author refers to another author's work and the primary source is not available.
- When citing such work the author of the primary source and the author of the work it was cited in should be used.
- Your in-text citation should include both authors:
  - the author(s) of the original source and the author(s) of the secondary source. For example: (Klein, 1985, as cited in Cruse, 1987).

Secondary references: numbered systems

- In numbered systems, the use of secondary references is generally not allowed.

- Authors are required to locate the source of information cited in a work they have read.
- In case the original source cannot be located, it should not be cited.

What is et al. in author-date systems

- In an author-date system you will come across something like this:

- Ashley et al. (2017) .
  - Et al. is an abbreviation (for the Latin *et alia*) that means *and others*.
  - It is used when referring to authors of a publication that has three or more authors. The first author's last name is listed, followed by et al. (with the full stop).

Citations: IEEE system

In-text citations

- According to the Institute of Electrical and Electronics Engineers (IEEE) style guide:
  - https://ieee-dataport.org/sites/default/files/analysis/27/IEEE%20Citation%20Guidelines.pdf
  - In-text citations should be cited in numerical order according to their order of appearance.
  - The numbered reference citation should be enclosed in square brackets [1] (rather than as superscripts or in bracketed () form)

In-text citations

- For example:
  - It was shown by Smith [1] that the power generated by an electrostatic energy harvester is significantly smaller.
  - The power generated by an electrostatic energy harvester is significantly smaller [1].

Incorporating citations in your writing

- Supporting an argument or point of view:
  - As Jones [1] has observed, …
- Exemplifying the point being made:
  - Thus, for instance, Smith [1] demonstrates that…
- Introducing a point of view:
  - According to Klein [1] …
- Concluding an analysis, etc.
  - Thus, Marder et al. [1] conclude that …
- Explaining a point:
  - Atwood [1] explains that …

Citing more than one reference at a time

- When citing more than one source at a time, the preferred method is to list each reference number separately with a comma or dash between each reference:
  - [1], [3], [5]
  - [1] - [5]

- The following method is also acceptable:
  - [1, 3, 5]
  - [1-5]

From a research paper: use of citations

I. Introduction

Permanent magnets are used nowadays in many applications, and the general need for dimensioning and optimizing leads to the development of calculation methods, whose first step is often to calculate the magnetic field created by the magnets. Two major kinds of applications can be identified: the ones which use parallelepipedic magnets and the ones which use cylindrical magnets. Parallelepipedic magnets are easy to produce and to magnetize, and the magnetic field they create is also more easily calculated. Geometrical methods have been proposed by Leupold [1] to calculate high uniform magnetic field sources [2] using wedge-shaped magnets—with sections presenting wedges, or angles lower than 90°—and extended from the Halbach "magical structure" [3]. Analytical approaches are of primary importance for the design of many devices, and the need for analytical methodologies is emphasized in all applications, from the generation of remote fields for MRI [4] or field gradients [5], to the microactuators [6] and diamagnetic levitation devices [7], not forgetting all the electrical motors topologies [8] and the sensors for mechanical data such as position or torque [9], [10].

References: general

References

- They are found at the end of your text and are arranged in numerical order according to their order of appearance in the research paper.
- Different style guides follow a different format.
- Books and journal articles are referenced differently.

Example of an author-date reference list

- Bellamy, K., *Computer Telephony Integration*, New York: Wiley, 2010.
- Hottel, H. C. and Siegel, R. "Film condensation," in *Handbook of Heat Transfer,* 2nd ed. W. C. McAdams, Ed. New York: McGraw-Hill, 2011, ch. 9, pp. 78–99.
- Jacks, S. *High Rupturing Capacity (HRC) Fuses*, New York: Penguin Random House, 2013, pp. 175–225.
- Rohsenow, W. M. "Heat transmission," in *Thermal Radiation Properties,* vol. 3, M. W. Catton and J. P. Hartnett, Eds. New York: Macmillan, 2012, ch. 9, pp. 37–62.
- Vargafik, N. B., Wiebelt, J. A. and Malloy, J. F. "Radiative transfer," in *Convective Heat*. Melbourne: Engineering Education Australia, 2011, ch. 9, pp. 379–398.
- Ziemer, Z. E, *Principles of Communications: Systems, Modulation, and Noise*, 7th ed. Hoboken, NJ: Wiley, 2015.

References

[1] Macy B (2015) Reverse Engineering for Additive Manufacturing. *Handbook of Manufacturing Engineering and Technology*, Springer, London2485–2504.

[2] Schleich B, Anwer N, Mathieu L, Wartzack S (2014) Skin Model Shapes: A New Paradigm Shift for Geometric Variations Modelling in Mechanical Engineering. *Computer-Aided Design* 50:1–15.

[3] Stark R, Grosser H, Müller P (2013) Product Analysis Automation for Digital MRO Based on Intelligent 3D Data Acquisition. *CIRP Annals – Manufacturing Technology* 62(1):123–126.

[4] Majstorovic V, Trajanovic M, Vitkovic N, Stojkovic M (2013) Reverse Engineering of Human Bones by Using Method of Anatomical Features. *CIRP Annals – Manufacturing Technology* 62(1):167–170.

[5] Erdős G, Nakano T, Váncza J (2014) Adapting CAD Models of Complex Engineering Objects to Measured Point Cloud Data. *CIRP Annals – Manufacturing Technology* 63(1):157–160.

[6] Laroche F, Bernard A, Hervy B (2015) DHRM: A New Model for PLM Dedicated to Product Design Heritage. *CIRP Annals – Manufacturing Technology* 64(1):161–164.

[7] Rekoff M (1985) On Reverse Engineering. *IEEE Transactions on Systems Man and Cybernetics* 3(4):244–252.

[8] Chikofsky E, Cross J (1990) Reverse Engineering and Design Recovery: A Taxonomy. *IEEE Software* 7(1):13–17.

[9] Kirk P, Silk D, Stumpf MP (2016) Reverse Engineering Under Uncertainty. *Uncertainty in Biology*, Springer International Publishing: 15–32.

[10] Otto K, Wood K (1998) Product Evolution: A reverse Engineering and Redesign Methodology. *Research in Product Development* 10(4):226–243.

[11] Ullman DG (2010) *The Mechanical Design Process*, 4th edition. McGraw Hill International, London.

[12] Varady T, Martin RR, Cox J (1997) Reverse Engineering of Geometric Models – An Introduction. *Computer-Aided Design* 29(4):255–268.

[13] Durupt A, Remy S, Ducellier G, Eynard B (2008) From a 3D Point Cloud to an Engineering CAD Model: A Knowledge-Product-Based Approach for Reverse Engineering. *Virtual and Physical Prototyping* 3(2):51–59.

[14] Ouamer-Ali MI, Laroche F, Bernard A, Remy S (2014) Toward a Methodological Knowledge Based Approach for Partial Automation of Reverse Engineering. *Procedia CIRP* 21:270–275.

[15] Dryden IL, Mardia KV (1998) *Statistical Shape Analysis*, John Wiley & Sons, London.

Example of a numbered reference list

DOI

- A DOI, or Digital Object Identifier, is a string of numbers, letters and symbols used to permanently identify an article or document and link to it on the web.
  - For example, http://doi.org/10.3352/jeehp.2013.10.3

References: IEEE system

IEEE: book (one author)

- [1] M. Markel, *Technical Communication*, (10th ed.). Boston: Bedford/St. Martin's, 2012.

- [Citation number] Author's Initial(s), Author's Surname, *Book Title,* xth ed. Place of publication: Publisher, Year.

IEEE: chapter in a book

- [1] P. R. Gray, P.J. Hurst, S.H. Lewis, and R.G. Meyer, "Feedback," in *Analysis and Design of Analog Integrated Circuits*, 2nd ed. Hoboken, NJ: Wiley, 2001, ch.8, pp.593-599.

- [Citation number] Author(s) initials. Surname (separated by comma), "Title of chapter in the book," in *Title of The Book in italics and title case*, Editor(s) initials. Surname, [Ed., or Eds.,] xth ed. Place of Publication: Name of Publisher, Year of publication, ch. x, [chapter number] sec. x, [section number] pp.xxx–xxx [page range]

IEEE: chapter in an edited book

- [1] K. Punera and J. Ghosh, "Soft cluster ensembles," in *Advances in Fuzzy Clustering and Its Applications*, J. Valente de Oliveira and W. Pedrycz, Eds. Hoboken, NJ: Wiley, 2007, pp. 69-90.

- [Citation number] Author(s) initials. Surname, "Title of chapter in the book," in *Title of The Book in italics and title case*, Editor(s) initials. Surname, [Ed., or Eds.,] xth ed. Place of Publication: Name of Publisher, Year of publication, ch. x, [chapter number] sec. x, [section number] pp.xxx–xxx [page range]

IEEE: journal article

- [1] G. Alred, "Essential works on technical communication", *Technical Communication*, vol. 50, no.2, pp. 585–616, Nov. 2003.

- [Citation number] Author(s) initials. Surname, "Article title", *Journal Title*, vol. x, no. x, pp. xxx-xxx, Abbrev. Month, year.

Further information

- To find more information on the IEEE style guide, see:
  - https://ieee-dataport.org/sites/default/files/analysis/27/IEEE%20Citation%20Guidelines.pdf

CASSI

- The CAS Source Index (CASSI) Search Tool is an online resource intended to support researchers and librarians who need accurate bibliographic information.

- For abbreviations of journal titles (CASSI abbreviations), see:
  - https://cassi.cas.org/search.jsp

Reference Management Systems

Referencing tools and reference management software

- They refer to software or online tools that allow you to handle references (e.g. store, format references depending on the system you are following).
- They help you organise and format references so that you can easily incorporate them in your theses, dissertations, research papers, etc.
- Some examples include:
  - Zotero, EndNote, RefWorks, Mendeley, Citavi and many more.
  - It's important to do a good search and try out different alternatives before committing to one that really suits your needs.

Reference management systems/software: Zotero