

Power tools and how to use them

Hello, my name is Gerald Maguire. I'd like to welcome you to this module for the course II2202: power tools and how to use them.

Slide 2: My personal goal: To be lazy

One important thing from my point of view is my personal goal: I want to be lazy, but I'm willing to work hard to be lazy. That means that if I'm likely to have to do something more than once, then my goal is to automate the task. And of course, I have to think about the times automate the task and the number of times I'm going to do this automated task. And if that is less than doing the task N number of times, then (yes) I'm going to automate the task.

Slide 3: No matter what tool you use, learn to use it

Now, no matter what tool you're going to use, learn how to use it. An important part of that is, of course, that you value your own time; therefore, it's worth investing a little bit of time to use the tool that you're going to use - since it's going to help save you time in the long run. It means invest the time at the start. Learn to use the tools smartly. It also means that you avoid looking dumb; you don't to hurt yourself with your choice of tool. So you want to make a good tool choice. Anyone to learn to use it well!

Slide 4: Topics

Now, in this particular module, we're going to talk about where you find authoritative sources. We're going to look at a variety of communication tools, particularly for written communications, but later for talks and oral communication. We're going to look at some tools to help you with your references. We'll look at some different reference formats. We'll look at the concept of the digital object identifier. And we'll look at some scientific citation formats.

Slide 5: Communication tools & techniques

but there is a broad spectrum of communication tools and techniques ranging from oral presentations to conferences papers, journal papers, websites, blogs, even open-source code, and open-source hardware, various sorts of applications and products, news releases, podcasts, videos, multimedia presentations, and of course popular books, newspapers, columns, etcetera. And you may even have to communicate with journalists and reporters - because part of your goal should be to communicate your results to as wide an audience as you possibly can.

Slide 6: From Aristotle's rhetoric to the basic principles of a presentation

So, let's take a look at basically Aristotle's idea of rhetoric. He says there are three basic principles: Logos - appealing to the logic or reason of the user, Ethos - appealing based on ethics because, for example, the speaker has credibility or the writer has credibility, and therefore I will listen to what they say or read what they're writing, or Pathos - from suffering - in which case we make an emotional appeal, or we motivate the person by their emotions. And that leads to the basic process of story, reason, and persuasion. We have to tell the story. We want to help the person reason through what it is that we're presenting. And in the end, we want to persuade them to do something.

Slide 7: Before we communicate, we need to have something to communicate

So before we need - before we communicate - we need to have something to communicate. That typically means you need to do your own work. Now that work could be either original creative work - you conceive of the new idea- it could be development - you design, implement, operate, and evaluate something—the CDIO objectives. But the key is you need to describe the results either yourself or others because you want to put them into patents, you want to write a review, you want to write a survey, you want to write a scholarly article, or you are going to write a book, such as a textbook or professional literature, or you're going to write a popular press or produce a media release about it.

Slide 8: Finding sources and citing them

That leads us to the question of finding sources and citing them. We look for sources because we want to understand what others have already done. That means, of course, we have to find them first and then after we find we read them, and then our own words describe what it is that this source has communicated to us. And then, of course, we need to decide if we find it relevant to what it is that we are writing or doing. So, let's start with the problem of finding suitable sources. An obvious place to start with this the search engines, both the web and the library. And the library here at KTH has a variety of search engines that can help you. But it's also important for you as an individual who is going to be a professional or maybe is on the path to being a professional - to develop good reading habits. You need to get in the habit of reading review articles, reading the journals in your area, reading the conference proceedings, reading the books have come out in your area, etc. Because one of the things that you want to do is you want to follow the experts in the field. That means you need to be able to recognize: Who are they? Who are the up and coming experts that I should be following? And, of course, another way that you can learn about sources is by asking others-

Slide 9: What about Wikipedia?

So, the question that often comes up is: What about Wikipedia? It is important to note that Wikipedia is not a primary source. However, it may be a place where you start to look - to

get some ideas, and then follow the references to now the real primary sources. So that raises the question of: What is the source? Well, the source is both the work itself, the author of the material, and the publisher. Because, of course, published materials have the advantage that there's some reliable publication process - usually associated with peer review and editors who take responsibility for the content of what they produce. We mention the idea of an authoritative author - who are the experts. I believe them because they're experts in this field. I've read the earlier papers. They provided me useful information about this. I want to read the next things. And, of course, a reliable source is verifiable- you can follow the citation and find the source. That means, of course, that when you're writing your citations, it's absolutely key that both you and someone else are later able to find that source. So, try to write a complete a source as you can when you are first reading it.

Slide 10: Common places to look – for ICT sources

So the common places to look for sources for material in the area of ICT is, of course, sources such as the ACM Digital library, the IEEE Xplore digital library, The Institute of Engineering and Technology (INSPEC) database, site seeker, ISI web of Knowledge. But a surprisingly useful place is patent offices, such as the US Patent and Trademark Office, the European Patent Office, the Japanese patent office, etc. And the advantage is - that to secure a patent, there must be a description that tells someone who is "skilled in the arts" how they themselves could reproduce what it is that the claim in the patent is for. So the result is they give you the information. Now, often they give you this information in a form that is very hard perhaps to understand at first - because it's written in a dialect often referred to in English as patentese, but once you learn how to read it, you'll find that they are a wonderful source of information. In addition, there is a variety of search engines: Google, Google Scholar, Google Books, CiteULike, etc. etc. And you should learn how to use these tools to find the references that you're going to be using.

Slide 11: Additional common places to look – for ICT sources

Now there are a lot of other additional sources; for example, here at KTH, we have DiVA (kth.diva-portal.org), which is a digital archive for scientific publications that is widely used in Scandinavia. That is an excellent source because it includes all of the earlier theses and dissertations of KTH. So, you can build upon the work of other students who come before you. There are also services arXiv.org that is widely used in physics and the Computing Research Repository, Compendex, the Collection of Computer Science Bibliographies, DBLP - Computer Science Bibliography, US National Science Foundation's Digital Library, Microsoft Academy search engine, and one of my favorite sources for finding information about books is, of course, booksellers like Amazon.com.

Slide 12: The Collection of Computer Science Bibliographies

<http://linwww.ira.uka.de/bibliography/>

so if we take a look at The Collection of Computer Science Bibliographies, we can type it into it. In this case, we've typed to search for author (and in this particular case myself), and it found a whole variety of articles. We can see here the title of the {authors} [correction] of the publication, the list of the authors, where it appeared, the information about it, the year, etc. and we can click over here on the right, and we can get the BibTeX version of the bibliographic data. And we'll talk later about what that format is. But we can look all through these various different publications, find the one by that author we are interested in.

Slide 13: What to do when you locate a potential source

So, now that you found a potential source. What do you do? Well, the first thing you're going to do is you're going to read the abstract. Then, typically, you're going to go all the way to the conclusions. The abstract is going to tell you: What's the problem they were trying to solve? Why this is a significant problem? Why hasn't somebody else solved it before? And the punch line of the conclusions. But then you want to go and look at the actual conclusions themselves - where they go into more detail about what their conclusions are and quite often describe the future work: we did these things, but we left out this. Therefore, that's often a very good place for you to get a hint of "Ah! This is the next thing that I should work on." Then you go read the body of your report if you found those parts interesting. And, of course, look at the references - because you want to understand what did this author think were the relevant references that he or she built upon. And you want to go and look at them. And you want to look at who influences them. But you can also, through the databases, find who has cited this particular publication that you're currently reading. So you can build a network of related publications, and that will give you an enormous advantage in finding the material that you're looking for. Look at the list of authors and their affiliations. This is important because quite often, you're looking to see who else were they working with. Because maybe you'll want to follow the publications that they have produced or maybe a group that regularly publishes together, and you want to understand who that group is. And you want to see the net set of things that they have done - because not all of the authors may be involved in all of their publications. You want to write down all the necessary reference information now. Why? Because you want to be able to find it (your source) again, and you want to later potentially cited if you find it to be relevant. And, of course, it's important that you write a summary of what you learned in your own words - while the thoughts are fresh in your mind - while you understand "Ah! This is what I learned from this publication". Write some notes to yourself.

Slide 14: What to write down for each reference

So what do you write down? Well, it is essential that you write enough that you can go and find that document. That means, for example, for a web page, it is very important to write down the date of your access or the date of last modification - Why? Because the contents found that URL may change with time and you may need to go back into time and be able to

look at what the webpage contained at the time you look at it. One of the ways that you can look at that is something called the Wayback archive found at <http://wayback.archive.org/web/>

Slide 15: <http://www.it.kth.se/~maguire> on 2001.05.15

And via this archive, you can find such useful things, as if you look up the URL <http://www.it.kth.se/~maguire> we can go back to what was on that page in 2001 on the fifteenth of May - where you can see I had a little bit more hair. But you can also see all these little spikes along the timeline- here the times when the web search engine walked that page and captured it - so we can go to any of those particular dates that we want.

Slide 16: Digital Object Identifier (DOI®) System -

<http://www.doi.org/>

Now, I mentioned a little earlier the concept of something called the Digital Object Identifier or DOI. If you go and read at <http://doi.acm.org/10.1145/1859204.1859218>, Peter Denning and Robert Kahn's paper "The long quest for universal information access" - they described the whole basis of this document object identifier and the key feature is that it's a numbering space. The first part of the space is assigned to a particular entity, and then the second part after the slash is assigned by that particular entity. Now, the overall set of this hierarchy of identifiers is managed by the International DOI Foundation. And those prefixes assigned to registration agencies. So, for example, ACM was assigned the prefix 10.1145. So, if we look at an object that begins 10.1145, we know that it was ACM. And now, we can see that in the case of the particular article that I mention, we can see that the 10.1145/1859204.1859218 that uniquely identifies this particular publication. And we can use that as a URL, or we can actually go to <http://dx.doi.org/> put in that URL, and it will resolve back to the publisher, and we can find all the information about that article. So it truly provides is a unique ID.

Slide 17: International Standard Book Number (ISBN)

Now, that's for articles conference proceedings, etc. In addition, we have books. And books have an International Standard Book Number (ISBN), and it is either ten or thirteen digits long. And it again is split into this set of elements, in the case of ten-digit ISBNs, it's a group or country identifier, then a publisher identifier, then a title identifier and then finally a check digit. In the case of thirteen digit ISBNs, they all begin right now 978 and then a series of information. Now, there's ISBN agency, and they assign the ISBN publisher index (the beginning part of that) to publishers in a particular country or geographic territory. And then, those entities, in turn, assign an ISBN for each title. For example, here's a book consisting of a collection of papers. It has a DOI, and it has an ISBN. And if we notice here, the particular number of a scheme that Springer has used - the publisher of this book - was to take the ISBN underscore and now the digit or digits afterward to identify the chapter within this book - because this book consists of a number of chapters - with each chapter a paper by a set of authors. And this format itself is an example of BibTeX.

Slide 18: International Standard Serial Number (ISSN)

Now, in addition, there is something called an International Standard Serial Number (ISSN). And these are actually identifiers for whole publications _not_ a specific article but for a full publication. The advantage is for most major journals is they have an assigned ISSN. And it will help you track down the particular journal and the information about the journal you are looking for.

Slide 19: KTH Library: <http://www.kth.se/en/kthb>

So, if we go to the KTH library, in this case, use the URL: <http://www.kth.se/en/kthb>, so we get it in English. We get this user interface, and one of the first things we see is there is a new search engine called Primo. And Primo is a meta-search engine it uses a variety of search engines under it - so we can search across articles, books, journals, databases, etc. I simply enter in the term that we want, hit search, and off we go.

Slide 20: KTH Library: Databases

But we can also go and look at particular databases. So if we go to this set of tools for databases

Slide 21: KTH Library: Databases

We can select databases and search tools, and then we got a list of subject areas. And we can choose particular types of content, or we can type into this field down here the particular name of the database that we want to Find. So, let's say we go into this, and we say, "Aha! I am looking for a database that has in its name 'web of' because I know one of those is web of science."

Slide 22: KTH Library: Database list ("Web of")

So "Ahah!" I find my "Web of Science" I choose the particular one I want to - say go to Science Citation Index. We can now go inside that and

Slide 23: Web of Science

We have now have the Web of Science interface. And the Web of Science interface gives us an interface to the Thomson Reuters database of publications which they have indexed. We can put in various search terms in the search field. We can limit it to a particular set of years- that is separate.

Slide 24: Web of Science: Search

So let us say, search for "Maguire, GQ" and I say that that is an author whose publication I'm looking for. Viola!

Slide 25: First four records

The search results are shown here, and I've set the order of the publications from newest to oldest - so the most recent publication is listed here. Over here, it says how many times it was cited - in other publications in that Thomson Reuters has indexed. If it's in some other publications that they have indexed, then I won't be able to find the citations - but I can find the title of the author's where it's been published, the publication information, etc.

Slide 26: First four records – sorted most cited first

Now, if we look into in a little more detail, let's say we instead of taking it in the most recently published order, we look at it in the most cited first. So, in this case, we set time cited from highest to lowest, so this is the most cited publication I have with one of my former doctoral students Joe Mitola. As of the date that I got this page, that was cited 2665 times. And here's my second most-cited publication, etc. etc. Citations mean that somebody else other than the authors themselves thought that it was worthwhile, and this was a useful source that they either wanted to point to and contrast their results met or say that how they build upon it and therefore they thought it was worth citing.

Slide 27: First of these records

So highly cited articles usually are quite interesting to look at. If we take a look here, we can see over on the right-hand side in the details - we see how many times it was cited. And now, we can create a citation map. We can see all of the publications that cited it. We find, of course, the information about the publication over here: title, authors, publication, abstract. etc. etc. And we can even find out what other citation counts there are.

Slide 28: Articles that cite the 1st record's publication

Now, as I said, we can treat this is a graph in the citation space. So, if we look at the first record and we look at the list of the publications that cite that publication - here we see the list of those papers. So, now we started to walk this web, and we continue out multiple layers. And you can again decide where you're going to cut off your search based on your time, interest, etc.

Slide 29: Primo

I mentioned Primo. We can put the same search term into Primo, and it searches the KTH catalog of books, journals, and separate other databases, and even the searches a variety of Swedish repositories.

Slide 30: Primo results

What do I get back from that? I get another set of publications. And these now are more mixed, because some are journal publications - if it is available in the KTH library it will tell you. In this case, it this appeared because I was an examiner for this particular student, so it

mentions me for that. We have another publication, it is available online; if I click on that I can go get the information for that publication.

Slide 31: Details of a publication

So, in this case, here's the title there are a variety of versions of it I can get details and I can now find further information about that particular publication. So, for example, one of the things that I might find is the list here saying subjects, but you can think of these as keywords so I can think about "mmhm! I found my first paper - how do I find the papers that are related to it" - that we'll find the papers that have a similar set of keywords. And you can now manage to do searching over the sets of keywords.

Slide 32: SFX data

So, as I mentioned, it is available if you click on the SFX key, you can see the various places that it's available from. You can find the full text here; you can find out if it's in the library, you can find out the ranking of that particular journal, etc.

Slide 33: Following the LIBRIS webbsök link

So, if we take a look at Libris - the National Library of Sweden's collection. We can find out, "Ahah! Yes, they have the Scientific World Journal", and there is information about it. And we can go and find out which libraries have it in different parts of the country etc.

Slide 34: Primo related articles

We can also find the related articles. So, in this case, we clicked on the link for a paper I wrote with my colleague Ellen McGee who is one of the collaborators that I've had looking at ethical issues in implantable computing. And we wrote a paper some time ago called "Implantable Brain Chips? Time for Debate". And we can see: Who else is interested in this topic? So, "users interested in this topic also expressed interest in" - and now we see a set of related publications. That helps going find the related literature, not just the single paper that we found.

Slide 35: Following SFX for an IEEE publication, takes you to IEEE Explore

If you follow SFX to IEEE publication is actually takes you to the IEEE explorer database, or you if you wanted, you could have just gone directly to the IEEE explore digital library, and you can input in search terms there. You can find the papers that will have the full text you can click on it. If you go down this page, it'll also this the DOI of the article; it gives the abstract, etc. And we see here that it says the references - these are the references this particular publication cited. "Cite by" tells us the other publications that cited this article. Keywords are the keywords that this article uses. Various metrics. And we can even find similar papers. So again, this is all to help as go and find what it is that we're looking for.

Slide 36: KTHB Databases by subject area

The ACM library is another [digital] library we might want to use- But an advantage of the KTH library database interface is we can simply click on "Computers IT" and it will now limit the set of databases that it shows us to those that are in that area. And the first one we see here is the ACM digital library, Artech House, etc. etc. there are many more.

Slide 37: KTHB Databases Computers ICT

So, how many databases are there on ICT. Well, there quite a few of them.- from the ACM one at the beginning of the alphabet through all the way to the Web of Science in the latter part of the alphabet. So they're quite a lot of them - which may mean that you may have to spend quite a bit of time searching for what you want. But you will tend to find (probably if your experience and areas that you work in are similar to mine) that the ACM Digital Library, arXiv.org, IEEE explore are the most likely spots, [while] Sciencedirect and Scopus are also other spots, and for looking at very widely cited publications in the set of journals that Web of Science indexes - the Web of Science database is useful.

Slide 38: IEEE Explore exporting citations

So, okay, now you found the information about the particular publication. Now you would like, of course, to be able to get the information that you need to put in your reference. So, one of the things that we can do is, here, but in this case, IEEE explore - let's just say I want to export the citation. So, I want to download the citation. I choose the format I want to download it, and I can download the citation or the citation plus the abstract. I then click download. [CLAP] Viola! I get a little document that has the citation.

Slide 39: IEEE Explore exporting citations

So, in this case, here is another example of a multi-port mobile internet router that I wrote together Frank Reichert and Mark Smith (now professor Mark Smith), and here I have my choice to get the citation I get download in plain text.

Slide 40: KTH library: Finding a journal

Now. How can I find a particular journal - because let's say I already know that it appears in Communications of the ACM. Well, I can go into the KTH library section - under Find a Journal, enter part of the name of the journal - Viola! It gives me the list of them. I choose the one that I want, and now I can go into that particular journal.

Slide 41: Search by DOI

I can also search by DOI, so in this case, I went to IEEE explore, and I entered a particular DOI right and viola up comes that particular article. We see the matching DOI, and we see that it cited by 27 papers and is cited in 3 patents. So, if I click on either of these things, it takes me to the list of those publications so I can see the three patents that cite it or I can see

the 27 papers or I can click on the PDF icon, and I can get the full text of the paper. Where if I click on this line, I will get more information about the paper.

Slide 42: The citing patents

So, in this case, I clicked on the citing three patents, and I found out that there were three patents and here is the information for the patent numbers, here are the authors of those particular things, and if I click on the PDF link here - I can get the full text of those patents.

Slide 43: The citing papers

I could also click on the citing papers. There were 30 citations; in this case, 27 of them were publications - voilà! Here are the various citations and the IEEE journals for that particular paper.

Slide 44: Citation map

I can also compute a citation map, and that will now give me a relationship between the references and the citing documents that cite that particular reference. So now, it gives me the relationship between the references at the end of the paper and who all has cited those particular references.

Slide 45: Downloading citations: BibTeX

As I mentioned, a common format for {citations} [references] is BibTeX. We mentioned that we could download the citation in that particular format, and then we'll see later how we can load that into one of several tools. But what does that BibTeX actually look like?

Slide 46: Downloading citations: BibTeX

It begins with an at-sign, and then it has a word indicating is an article, a thesis, a book, etc. It has a field for authors and has the list of authors, which journal (in this case), the title of the publication, the year, the month, the volume number, the page range, an abstract, the set of keywords, the DOI, and the ISSN of this particular publication.

Slide 47: Downloading citations: Plain text

We could also download it just as plain text. And here's the same publication downloaded in plain text.

Slide 48: Downloading citations: RIS format

We could also download in something called RIS format. And the RIS format can be read into tools such as EndNote, ProCite, and RefMan.

Slide 49: RIS format exported from IEEE Xplore® Digital Library

So what does that [RIS] look like? Well, here's the same publication now in RIS format. We see it uses two-letter abbreviations for each of the different fields.

Slide 50: BibTeX

So, back to BibTeX. BibTeX is a tool for formatting citations, so in LaTeX, we can write `\cite{ }` we put the tag, and then later, when we process the document, It will go out, find the reference, and put it in - in the style we have selected. So we have to tell it `\bibliography{ }` - we say one particular style we want. There are a whole variety of them. And then we say, "Okay, include the bibliography" [`\bibliography{ }`] and now we can name a database file, in this case, `rfci.bib`. And those are going to be all of the BibTeX references that I may want to cite in my article. And as we said, the format is basically as shown here.

Slide 51: BibTeX mode in Emacs

Now, one of the useful things is if you're using [the] emacs editor, it has a BibTeX mode.

Slide 52: BibTeX mode: bibtex-Article

I find this particularly useful because I can say meta-X bibtex-article and it gives me a whole set of fields for an article, or book, or whatever. But it also shows me - these fields are required, and these fields are optional. And although it says "OPT" in front of it, when I finished the article, it removes all of those and it will now than say key, volume, number, blah blah blah. To the best extent [possible], you want to add the information that you have, while you have it. If you know the volume number, fill it in. If you know the particular number of the publication, which pages, the month. And you can even add notes and annotations about a particular publication.

Slide 53: Zotero - <http://www.zotero.org>

One of my favorite tools in the last several years for dealing with bibliographies it is called Zotero, and you can download it from www.zotero.org. And it's basically a tool for managing and collecting the reference information that I want. And the nice thing about this - is that it can support multiple machines. So I can add a reference and then synchronize across the set of machines, and now it doesn't matter on which machine I'm writing my paper. That's very, very useful. It also works as a plugin for Firefox, and there are plugins for Microsoft Office, OpenOffice, LibreOffice, etc. So, now you have Firefox running in one window, you have your Word running another, and when you go to cite your article up pops a little window, you choose out of your database of things that you've entered the particular thing you want to cite. It now puts in your citation marker, and the nice thing is it will format automatically the bibliography at the end of the text. You can even add books by just typing on their ISBN. You can add many articles by typing in their DOI or their PubMed ID. Now a small caution if you put in a DOI for IEEE conference publications, it doesn't put in the conference name - that you're going to have to manually put in yourself. But it populates quite a lot of the other

database [fields]. You might say, "Oh, No!, I don't wanna have everything tied up in the system it might not run for forever" etc. Well, the nice thing is you can export from Zotero in BibTeX, RIS, whatever - and then read it into another tool if you want. So it's a very very very useful tool. And it is smart enough to be able to for web pages keep track of when you last access them and even grab a copy of the web page if you want.

Slide 54: Zotero + Word 2010: IEEE format

So, for example, I created a simple little article here using Zotero plus Word 2010, and I said, in my text, "One of the early protocols for multicast distribution of files as described in RFC 1235" and that is a publication by Ioannidis and Maguire. John Ioannidis went on to write several other RFCs. And when I was writing this, I simply said, "Oh! Add the reference to this thing, which is RFC 1235". It's possible to go and mechanically get the set of all the RFCs - so you can have complete information about them. And then I said for this one I want a multiple citations and I wanted, and I put this set into it. *Viola!* It automatically produces this set of references in the reference list at the end of the paper. I didn't have to go in manually write those out: thinking oh do I put a comment here, do I put the double quotations around this, etc. it does all that for me.

Slide 55: Zotero + Word 2010: Vancouver format

But the best thing is I can now go and say, "Oh, but I don't want it in IEEE format I wanted in Vancouver format because the journal that I want to submit this to one in Vancouver format" I simply go and change it, and it automatically changes the way the citation marks appear in the text and automatically regenerates the list of references with the appropriate name orderings, etc. in Vancouver format.

Slide 56: Zotero + Word 2010: Modern Language Association (MLA) format

I could say I wanted in the Modern Language Association so-called MLA format. So, it can go now and say, "Oh, it's (Ioannidis and Maguire)" and put the references all in once again in the appropriate format.

Slide 57: Zotero Styles

Well, as of the last time I looked, there were over 7,818 different styles already in the Zotero style repository. So the chances are - if you're submitting to a journal - that someone else has already done the style sheet. If they haven't done the style sheet, then, of course, you may need to write it yourself.

Slide 58: Citation formats

So you say, "What citation format to use?" Well, you need to follow that that is specific to where you're going to publish it. So the publisher will specify that. Or if you're submitting it

for course, the teacher will typically specify that. But in ICT, the most common formats you're going to encounter are one the IEEE formats, the ACM Special Interest Group formats, the ACM Special Interest Group on Computer-Human Interface Conference Proceedings, IEEE Transactions on Communications, or Communication Magazine - who all have their own particular formats. So if you write a publication for one of those, you will need to use the appropriate citation format.

Slide 59: Zotero and BibTeX

Now. We mentioned that you can export the information from Zotero.

Slide 60: Zotero and BibTeX

So, in this case, I selected a particular publication, and I said, "I want to export it". So here was the publication I want to export the item.

Slide 61: Zotero export as BibTeX

Now, I can go and say, "okay, for that particular item - exported for me" - it gives me the BibTeX for that particular book. I could have chosen to export in RIS format or even as a Zotero RDF file - which can be read into another Zotero.

Slide 62: Automatically exporting to BibTeX

There's even a tool written by Jason Friedman, who uses MozRepl to automatically with a Perl script keep extracting out the information in BibTeX format, out to make it very easy for those who were going to write your documents using LaTeX.

Slide 63: Resource Description Framework (RDF) format

The RDF format that I mention for Zotero is the resource description format you can read about it. And as I said, you can export documents in that format.

Slide 64: Save Google Scholar results (With citations set to Import into Endnote)

Now one of the really useful things is that Google scholar is already set up so that you can export citations. And by default it usually is designed to import into endnote. In which case, we say yes to this, "do you want to import items into Zotero" - so if I click on this, it will automatically take those publications and output them in RIS format. Zotero knows how to understand RIS format. And add them to my collection of publications that I'm keeping track of. And I can organize those in different groups.

Slide 65: What you will see while importing

And what you see while you're importing - is it'll tell you that is importing, saving it into the particular group and you'll see them added one by one.

Slide 66: Zotero is more than just a tool for managing references

But Zotero is a lot more than just for managing references - you can add notes for each particular reference that you have. You can attach snapshots of web pages. You can attach a PDF of the document. You can add tags, so as to facilitate finding it later and organizing them. You can even search over the set of things that you've got.

Slide 67: You can add your own notes

So, for example, I mentioned adding notes. In this case, I went to Google patents, and I looked for multicast file distribution, and I found this paper by Kumar. I can see when it was done, I can see the dates when it was filed, and all of those sorts of things. And I can write my note over here - because this patent will be relevant to the project because of its use of multicast. That is a reminder to myself of why I'm putting that particular patent into my set of references.

Slide 68: Attach: snapshot, link, or file

So, as I mentioned, we can do is snapshotting - so we can, in this case, we can attach a snapshot of the current page, or we can instead put a link to the page, or we can store as a file, or we attach a link to the file. But since it is a patent, of course, I don't have to worry about copyright - because these are public documents, and therefore I can just snapshot the whole page and Viola! I have my own copy of it.

Slide 69: Attaching the PDF

I can also instead, in this case, get the PDF of it and store it.

Slide 70: Add appropriate tags

I can add a set of tags over here, so I can later search for it.

Slide 71: Zotero + DiVA

Now. Zotero we saw was a very useful tool. I also mention the database DiVA, the scientific database used here at KTH, and quite a lot of other universities and research institutes in the Nordic countries. And then if I find a reference, so in fact, here's a particular publication that I did with my colleagues Marilyn Noz, Henrik Olivecrona, and Mike Zeleznik. I can say on references - click on references - so I got a list "export references" - I can choose the format that I want to export it in. And for instance, I could export it in BibTeX format, and then I could read that now into Zotero, there's the BibTeX format.

Slide 72: Zotero + DiVA

Now. In the case of in DiVA, it also indicates the institutions where the people are from. I have the basic information I need.

Slide 73: Zotero + DiVA – important from clipboard

I go off to Zotero, because when it exported it - it was put into my clipboard - I now simply say import from clipboard - Viola, it's there!

Slide 74: CiteULike – export BibTeX, RIS, ... <http://www.citeulike.org>

Another database to use is CiteULike. It is also able to export in BibTeX, RIS, and lots of other formats.

Slide 75: Zotero: Collections and subcollections

But a useful thing in Zotero is to know that it's not about folders - although it uses these little folder icons - what they really are - are collections. And the collections of reference. And a reference can be in more than one collection, but if I delete a reference from a collection, it doesn't delete the reference - it can still be in my library. But if I delete a reference from the library - it does delete the reference, and it disappears from all of my collections. So you need to be a little careful about that. In addition, I can take collections and split them into subcollections.

Slide 76: Group libraries

So here is an example of a group library. I created a library, and it has this particular name. So anyone who wants can go out and look at that name and see what's in that particular library. The nice advantage of a group library is - I can create them for specific projects, and I can invite other people to join and share in that group library. And if I create the library, I can say: are they allowed to just read it, are they allowed to put entries there, are they allowed to store things there, etc. You can find out more about this. Well, Zotero is available as an open-source tool.

Slide 77: Endnote

In addition, there are some proprietary tools that do a similar thing. One of these is Thomson Reuters' EndNote, and they make versions of the software available for Microsoft Word and Apple's macOS. And you can find further details about it. And if you're asking yourself, "Well, should I use Zotero, or should I use EndNote?" And I suggest you take a look at Brian Croxall's article that appeared in the Chronicle of Higher Education in 2011, and it gives you a sense of one of the advantages and disadvantages of each.

Slide 78: Other bibliography/reference tools

There are lots of other bibliographic reference tools. A very popular one is Mendeley. And it's again, a free reference manager, but it's not open source. One difficulty is if you're working for a project in the company - it may be the case that you cannot reveal what particular publications you're working on and working with - least you reveal to others what it is that you're working on. And unfortunately, in the case of Mendeley, all of the things are put into it a shared database. Whereas, it is possible is Zotero not to share it and run a standalone version of the Zotero on your own computer, in which case, the references aren't visible to anyone else.

Slide 79: Export references from Zotero

There are lots of tools that have been written to be able to export references from Zotero to spreadsheets, etc. etc.

Slide 80: Learning

Now, shifting gears a little bit, it's important to understand that "Okay,!. We have found our references." "We have found the material that we're looking at." Now, we need to look at basically how we progress as learners. Because initially, we start out as novices, we don't know very much as we learn more he hopefully becomes a more expert learner. But expert learners supply three basic principles: the first is intentionality - attention and deliberation. This is extremely important that they pay attention, and they think about: Is this relevant? What does this mean? Another principle is reflection - that is, expert learners think about: What worked? Why did it work? Why didn't it work? And they learn from what it is that worked before, and they become therefore better and better at learning. And the third thing is accountability - it's essential that you become responsible for: What it is that you do. What it is that you say. And what it is that you write. And since one of the things that you want to be doing is, of course, being a professional - it's very critical that you are prepared to stand behind what you say, and you write. And, of course, this should guide what it is that you actually do. Mark Sample has an article called "Learning Through Digital Media: Sharing Research and Building Knowledge through Zotero" that takes some of these ideas and understands how by keeping track of this information in a systematic fashion being able to reflect upon it and being able to say, "Oh! That article influenced me - it caused me to do that" you can improve our abilities and hopefully progress to be an expert learner rather than simply novices.

Slide 81: Artisan versus Virtuoso

But in the extreme, after we have become a very, very expert learner, a very competent expert - that is basically an artisan. The next level is a virtuoso. And a virtuoso's ability is to go beyond what's already done by experts and, in fact, push the state-of-the-art, and in many cases, they know which rules to break and how to go about breaking them. But the key is using meta-cognition, you need to reflect upon not only your ideas and the ideas of others -

but you have to reflect on how it is that you think, how is it that you reason, and if you really take that to heart you can potentially become a virtuoso.

Slide 82: Conclusions

So the conclusions of this particular module are: It's very important to select your tools - so you should select them carefully. You should learn to use your tools well and, of course, safely. And when you truly master the tool, you'll find you can basically make it do whatever you need to. Then you have now become not only an expert also a virtuoso.

Slide 83: References

So, there are further references about this that you can read. And I wish you lots of fun!