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Science fiction at the Science Library, University of Oslo: how to actively use an SF collection as a sandbox for science

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Abstract: The University of Oslo Science Library holds a large collection of SF literature. The collection is only 5 years old, but has a rapid growth due to donations. This article describes why the Science Library as an academic institution needs a collection of SF, the nature of the collection, how we use the collection in innovations, and how we want the collection to evolve in the future. Important aspects of the development includes focus on public outreach projects, both to our scientific colleagues and to the greater public. This also means new ways to view library metadata and user-generated metadata.

Keywords: Science Fiction Collection, Science Library, Interdisciplinarity, Science, Public Outreach, Science Communication

Biography: Line Nybakk Akerholt is a senior librarian at the Science Library at the University of Oslo, and finished her Master's Degree in Library and Information Science in 2008. She is currently responsible for the astronomy and astrophysics collections, and is always on the lookout for new topics to explore and new tools for the library.

Tone Charlotte Gadmar works as a senior academic subject librarian at the Science Library at the University of Oslo. She finished her degree as Dr. Scient. in environmental chemistry (UiO, 2005) and is responsible for the subject of chemistry at the Science Library. Focus and interests within the context of science fiction are reception, cataloguing, and organization of newly received material, and user contact, interaction and accessibility of the collection.

Kyrre Traavik Låberg works as the Head Engineer and programmer at the Science Library at the University of Oslo, and has a Master's Degree in Evolutionary Psychology from the Department of Biosciences at the University of Oslo, 2007. Main activities at the library consist of developing software and code to help users and coworkers better utilize library's resources. Programming languages include PHP, JavaScript and MySQL.



Image 1. The Science Fiction collection at the Science Library of Oslo (Simen Kjellin, 2017).

The University of Oslo Science Library turned 5 years in March 2017 after the merging of 10 small department libraries. The new joined Science Library also gave birth to our SF collection. A startup workshop revealed that a quintet of the librarians had a common interest in SF, and we already had a tiny collection of SF movies from the former Astrophysics Library. From that starting point, the SF collection has grown faster than any other collection in the Science Library due to our open-minded donation and acquisition policies. The SF collection has become an important social and academic factor in our public outreach strategies, and furthermore it functions as a test base for developments, innovations and co-worker training.

Positive leadership and willingness to take on small risks is important when it comes to starting a journey like this. As we will describe, it is not common for an academic library to take in a collection of literature of light recreational fiction - and as we discovered - a possible larger donation of an SF collection from an important author had been turned down at an earlier point.

The relationship between science and SF

SF is unfortunately probably one of the least acknowledged genres in academia. It might be one of the more underestimated fictional literature genres in society, considered mainly to be of light entertainment value and not to be taken very seriously. Few academic libraries can offer a dedicated and indexed collection of SF; if so, it is primarily in the context of a narrow literature genre for the particularly interested. If studied or used, focus is usually on the literary value and analysis of the material. Hence, the genre of SF has in an academic context traditionally been associated with,

administered and studied alongside other fictional literature genres, and therefore been placed in the humanities sections of the library.

A sandbox of the mind?

What is the motivation behind a large SF collection placed in the context of a science library? One could argue that a science library should focus solely on real science and factual literature, and that fiction holds no real value in this context. At the Science Library at the University of Oslo, we think otherwise. With the placement of a large, dedicated SF collection in the context of a modern science library, we would instead like to embrace and celebrate the close relationship between science and SF. Many with a background in science are attracted to the genre and are avid readers of SF, and many great authors of SF actually have a technical or scientific background. In essence, focus and thematic content of SF is intimately linked back to science and its motivation, development and value in society up through history and through the eyes of different cultural facets.

Every academic discipline is conducted within a context, and SF is especially important for the support and broader interest in the technical and scientific disciplines. It is the true and unlimited genre of “What if”. If we look back through human history of knowledge about our environment and technologic development, every new discovery or invention have begun as a vision of the possible realization of something new. The genre of SF has been a faithful travelling companion in the front line - in fact most often preceding the actual scientific development by several decades or more. It is a pioneer in that the genre “boldly goes where no one has gone before”. Before the research, development and utilization of new science, is the vision of the impossible being made possible: a “sandbox of the mind”.

Expanding the context of science

SF does not only provide a great environment for the proposal and discussion around the new technology or science itself, it also supplies a very valuable context for the implications and social meta-disciplines surrounding new development. Within the genre, we find a very valuable discourse of philosophy and ethics, or impact on society of new technological change, long before its realization. And we meet a bold, broadminded, curious and many-cultured perspective on nature and environment - and in the center of it all this eternal, pivotal question: “What is it to be Human under these conditions?”. At the Science Library, we feel that it is important to stimulate and cater for this debate surrounding the actual scientific disciplines.

Science holds as an academic discipline this wonderful dualism in its core, being both very rational and precise in nature, as well as being extremely creative and bold. A scientist has to be both strict and imaginative at the same time to make new hypotheses or design new technology. To verify new hypotheses, the scientist classically establishes a set of controlled premises and fixed conditions (e.g. a laboratory experiment), and then lets the scenario play out while being observed and experienced. Quite often scenarios or hypotheses are tested multiple times with variations in conditions; conditions that may be controlled and designed to deviate very much from what normally would be experienced under natural conditions. Thus science gains knowledge about nature and environment that lies outside our natural observed experience. SF as a genre operates very much along the same premises: a scenario can be designed and defined to fit the desired observation point. Technology, natural conditions and surrounding context, can be proposed without other restrictions of what is dictated by the purpose of the story, and the scenario is then, in the voice of the author, allowed to play out with the purpose of generating new experience by the observer. Thus SF creates a very nice literary parallel to the work in a science laboratory; a form

and methodology most scientists would find familiar. SF is not restricted by what is likely, realistic or even possible, only what is imaginable. Sometimes it is not even a motivation to sketch up the pathways of the future. When complex and difficult questions on society and human nature are up for debate, SF can play a great host for the debate, providing a safe and neutral environment. Sometimes it is liberating for humankind to observe itself “from a safe distance” and in a setting of the unfamiliar, where the familiar stands out clearer and more significantly.

The SF collection as platform for activities in an academic Science Library

Having a large SF collection located in an academic science library creates a lot of opportunities for various activities. It is a great source for inspiration and creativity, and can be used in combination with actual science to create a broader horizon. Science fiction has much more to offer than space travel and robots. Within the genre we will also find great lines of discussion on everything from communication and cybernetics, to climate change, resource management and synthetic biology. Thematically the genre offers extreme variation, and we have not yet come across a topic within actual science where we could not match with relevant counterparts from the SF collection. We have over the last years arranged a number of smaller and larger exhibitions of science and SF literature on the same topic side by side, or illustrated popular contemporary works of SF with the real science associated with the theme. One recent example is an exhibition on the series ‘Hunger Games’ by Suzanne Collins (books and films), where it felt absolutely natural to display it along with books on the physics of archery, chemistry of pyrotechnics, songbirds of the world, textile material science and of course sustainable food supply of the world.

SF within the context of a science library also creates a great bridge between different public audiences. Readers from a non-scientific background that may not usually consider themselves interested in science or natural users of a science library, might suddenly find for themselves a portal into science, and be encouraged to seek further information on nature and scientific topics. Vice versa, readers with primarily scientific background are encouraged to broaden their personal and academic horizon into the humanities, philosophy, society and art. We believe this to be a very good, relaxed and unthreatening common-ground “camp fire” for the two cultures in academia to meet, greet and explore topics of common interest from different angles.

The University Library of the University of Oslo is an open public academic library. It means that we do not only cater for academics, researchers and students, but also to the general public, young and old. Everyone with a public library card can borrow books from the collections, the SF collection included. Having the policy that the books should be read and enjoyed as much as possible by as great an audience as we can reach, means that we have a very low threshold for taking various selections of books from the SF collection out on tour for external events and occasions. We have some smaller “easy to move” bookshelves and have designed our own ‘Traveling Library’ to visit fairs and events of a SF or related scope that wants a visit from the collection. We then pick out relevant literature for the occasion and in collaboration with the hosts of the event. Our online library system allows us to register library cards and lend out books directly on the event, which is a great advantage as we can reach a larger audience – who normally do not visit academic libraries. With our open philosophy, we are not overly worried or overprotective of the books. We want them to be read and enjoyed by new readers, and we have not lost more than twelve books, which must be considered to be a very low loss number for such a large and open collection in a public library. We as library staff also gain from these experiences, as the contact with various readers inspires new thoughts on how to use and promote SF. Among the places we have been on themes events with our Traveling Library are ‘The House of Literature’ (Litteraturhuset) and ‘Oslo House of Artists’ (Kunstneres Hus), Maker Faire Oslo, and a large

LAN event called ‘The Gathering’ in Hamar. We have also had several radio opportunities to talk about SF, science and the collection.

Description of the SF collection

As of writing, June 2017, The Science Fiction collection at the Science Library has somewhat more than 8000 items, with about 7800 books and 200 movies and TV-series. It consists mainly of free donations from organizations and individuals, rather than traditional purchases - out of all the books in the collection, only around 200 acquisitions have been financed by the library, so it's true to say that this collection is not just *for the people, but of the people*. This is quite unusual for library collections - most collections are established by the libraries themselves through a top-down process; and although many donated collections are curated by various libraries, how many collections have dozens of donors? The collection is still growing, and if it continues to grow at the rate it has these four years, which is about 1700 items per year, we should reach 10 000 by autumn next year.

Who are our contributors?

As we landed on the decision to create an SF collection within our newly merged science library, we also realized that some possibly very good collections already existed close to campus, but that these collections needed a better system for management to reach their true potential. After reaching quick, common agreements with potential contributors, we acquired enough books to make the collection a reality.

There are two main contributors to the collection, making up almost half of the items - the largest being *Aniara*, contributing around 2000 books, and the second being *Johannes Berg Memorial Fund*, around 1800 books; the rest are contributions from individuals ranging from a dozen books to several hundred.

Aniara, Oslo students' Science Fiction Association, originally founded by Jon Bing and Oddvar Foss in 1965, is named after the poem by the Swedish Nobel laureate Harry Martinson. We still have quite a large backlog from the *Aniara* collection that has not yet been processed, notably magazines like *Analog* and *Fantasy and Science Fiction*, and some literature about SF. We also have several fanzines that we are planning to catalogue.

The Johannes Berg Memorial Fund is a fund dedicated to the memory of Johannes Berg, an avid collector, enthusiast, organizer, founder, and a central figure in the Norwegian SF and fantasy scene. We were lucky enough to acquire large parts of the Fund's collection of SF books, and at the same time contribute monetarily to the Fund.

In addition to these two organizations, the majority of the remaining donations came from around ten people giving more than hundred books each; they collectively donated around 3300 books. The rest, around 700 books, came from smaller donations and the self-purchased books by the Science Library itself.

The donors are on average people in their 50s to 70s, and this is somewhat reflected in the contents of the collection. It is maybe not surprising that the majority of the books in our collection are written in the seventies, when the donors were in their teens to late twenties approximately. But of course, it might also reveal a preference for the books written in those decades. There are probably many different reasons why the individuals give away their SF books to us - and we don't systematically ask why - but a reason they often mention is lack of space, sometimes in conjunction with moving to a new place.

With so many donations from private collections, it is maybe not surprising that we have many duplicate titles. About one quarter of the collection is duplicates. Therefore, an alternative, but maybe even more telling way of listing popular authors is by how many of their titles were donated by at least *two* contributors. When we list authors this way, we get a somewhat different list:

Table 2. Top ten popular authors of the collection, ordered by absolute number of duplicate titles.

Authors with most duplicates	Number of duplicate titles	Average duplicates per title
Niven, Larry	194	0.75
Asimov, Isaac	169	0.55
Heinlein, Robert A	112	0.69
Anderson, Poul	110	0.46
Clarke, Arthur C	89	0.59
Vance, Jack	85	0.63
Silverberg, Robert	82	0.41
Pohl, Frederik	77	0.46
Dickson, Gordon R	73	0.61
Herbert, Frank	71	0.74

Here we can see that compared to table 1, the list changed order somewhat, and among the top ten we now have two new authors, Gordon R. Dickson and Frank Herbert - and Ray Bradbury and Philip K. Dick are not on this list. With regards to *average* duplicates per title, we see that for Larry Niven, only one out of four books does not have a duplicate. Of course, the picture is more complicated because we have many titles that have several duplicates. One title has as many as eight duplicates. The current record is held by Larry Niven's short story collection *The Flight of the Horse*.

Table 3. Titles illustrating some of the collection's duplicates.

Title	Author	Duplicates
The Flight of the Horse	Larry Niven	8
The Illustrated Man	Ray Bradbury	7
Rogue Ship	A. E. van Vogt	6
Podkayne of Mars	Robert A. Heinlein	5
Dune	Frank Herbert	4

Duplicates are really a blessing for the collection - they make sure that the more popular titles almost always are available. We have storage capacity for duplicates, so they do not take up unnecessary space in the main collection shelves.

As we speculated in the previous section, because of the age groups of the donors the majority of titles are from the seventies, with the eighties and sixties respectively following suit (see table 4).



Image 3. Three titles, *Fahrenheit 451*, *Foundations Edge* and *The Flight of the Horse*, in all their duplicated beauty (Simen Kjellin, Trude Westby, 2017).

Table 4. Collection by publication year.

Years	Number of titles
<1940	18
1940-1949	30
1950-1959	338
1960-1969	870
1970-1979	2084
1980-1989	1461
1990-1999	814
2000-2010	435
2010-	164

Meta-literature about SF

The majority of the books in the collection is fiction, but we also have non-fiction in the form of encyclopedias, literature studies, social commentaries, philosophy or science in SF, graphic design, readers-/viewers guides and funny or creative books to particular series or “verses”. These works both help our users make their way around the SF universe and understand more about the genre, but they also directly help students. It has for instance been useful for many students in the humanities that have SF topics in their semester assignments or Master Degrees. For this purpose we have separated this meta-literature from the main collection and given it its own shelf labelled “About science fiction”.

Table 5. Some great SF authors in the collection, ordered by title per timespan

Author	Titles*				
	1940-1950	1960	1970	1980	1990-
Anderson, Poul	3	17	29	18	8
Asimov, Isaac	4	9	20	16	11
Bradbury, Ray	1	4	6	5	2
Cherryh, Carolyn Janice			5	16	9
Clarke, Arthur C	7	7	14	4	5
Dick, Philip K	1	2	32	13	8
Heinlein, Robert A	15	8	15	6	4
LeGuin, Ursula		3	11	6	4
McCaffrey, Anne		3	7	1	8
Merril, Judith	1	1	3		
Niven, Larry		2	12	10	12
Norton, Andre Alice	7	13	7	3	5
Pohl, Frederik	3	7	8	11	10
Silverberg, Robert		16	23	9	14
Vance, Jack	3	11	23	8	8
Willis, Connie				1	3
Σ	45	103	215	127	111

*Note that these are titles that were produced by the authors alone, and not in collaboration with others.

Accessibility and meeting the public

The collection itself is open to the public and has its own room in the Science Library. This room also serves as a “breathing space” for students and has a PlayStation, 3D-printer and couches for some well-deserved slouching. Aniara, the students’ SF association and our top donor, fittingly has its meetings in the neighboring room to the collection.

As mentioned in the previous section, the collection is often out and about. We bring along our little festival library when we go to different events. Perhaps the event at Oslo House of Artists was the most unusual and inspiring for us. We collaborated with Only Connect Festival of Sound that made a musical celebration of the work of J.G. Ballard.

Inside the House of Artists, we stationed our pop-up-library just outside the concert room, and as the guests came out in the intermissions, they would bring their wine, discuss the music, and browse our collection of Ballard and other related SF. There was a varied mix of people there, and we did not know how they would react to our little library. To our pleasant surprise, our presence was so appreciated that we lent out 20 books - around a third of all the books we brought to the event! We believe that the main reason so many people borrowed books that evening (except wine, music, high spirits and great literature), was the ease at which people could both borrow and return books. To borrow a book, they would only need to scan it with an RFID-reader connected to the touch screen computer, and then enter their telephone number. To return a book, they could hand it over to *any* library in Norway, and it would be sent back to us.

As stated before, the collection is open to the public, but also to interlibrary loans, so the books have been sent to many cities in Norway and indeed to other countries like Sweden, England and Germany. High schools, governmental departments and prison libraries have ordered books from us.

The SF collection as test base for library development - ongoing and future projects

Housing a special collection like the Science Fiction collection also means opportunities for technical development and innovations in the library. Many students in our scope - the sciences - have a deep knowledge about SF and this makes the collection a great tool for collaboration with our primary user groups. In our case, the SF collection is a defined holding in our library database which makes it easy to use as a test case in different projects.

In theory, there are few limitations to how the SF collection can be used. Two rules to follow are:

- 1) The items of the collection must be searchable through the library's online public access catalogue (opac)
- 2) All items must be available for loan (if not vulnerable, damaged or valuable).

But as we switched to a new opac (ExLibris primo) in 2014 and a new library database in 2015 (ExLibris Alma), we experienced some limitations in promoting the collection's content and in the speed at which we could enter new items into the database. That made us "think out of the box" and look for new opportunities regarding visualization and indexing. As we already had started collaboration with our university's interaction design course INF2260 for developing new services based on the User experience methodology (UX), it was easy to also add ideas related to the SF collection to the pool of possible projects.

For students at our university - mostly students of informatics, doing projects on a special collection that is both well-defined and easy to use in public outreach is interesting. For the library this means that we have several opportunities each semester to discuss the development of the collection with our primary users, and that we often have the opportunity to have projects connected to new technology with the collection as a core element.

For the librarians at the Science Library, the SF collection has been a collection that we have been able to treat with ease and creativity. We have made a temporary decision that, to make the acquisition process speedier, this collection is treated easier regarding the otherwise strict cataloguing rules. This decision has also been a great opportunity for us to help persons gain new competences, and to introduce them to the library sector.

The Visual Navigation Project

In collaboration with the Visual Navigation project at the University Library of Oslo, Yaron Okun, a student at the Department of Informatics, conducted a Master Degree on how to use a touch table to induce curiosity for both SF and the science of SF.



Image 4. Visualisation of the SF collection on a touch table

A selection of books and DVDs from the Science Fiction collection was hand-picked for the purpose of Yaron Okun's Master Degree, but we are still in the process of including larger sections of the collection into the project. The plan is to have this touch table located next to the collection to better introduce users to the it. The interesting aspect of this approach to accessing our catalogue is the contrast to the typical search interface of modern library front-end systems. The point of the touch table is to browse the collection rather than search for a specific item, and along the way get more entertaining information on each item than you would ordinarily get through standard library search interfaces. For example, the user can see video interviews with authors or trailers to movies and so on.

The cover scanning project

To better visualize our collection with new computer based services, we discovered at an early point the need to use visual components. In SF literature, the imagery on book covers is rich, colorful and perfect for public outreach. Many of these front pages can be found online via different services, such as the Google Books API, but there are also many that cannot be found. Many titles simply don't exist in the service database or they lack ISBNs which are required by the service. There can be thousands of front pages that we can't acquire online, or that have too poor quality. So what can be done? Our solution is the "front page box", which is rather home-made; it is constructed from an upside-down IKEA plastic storage box with a high resolution web-camera mounted in the "ceiling". By placing books on a RFID-reader inside the box, the cover is photographed automatically, and along with other metadata (like sleeve description), it is sent to the library servers after a librarian checks the quality of both image and metadata. To process our collection with the "front page box", we have engaged our student-helpers working in the library reception

Ideas for new projects

User-/interaction design projects involving students and the ongoing visualization project, and the touch table. Hopefully we will be able to gain more metadata than we obtain in our catalogue already.

Keyword-indexing – A project collaboration with the Library- and information studies at Oslo and Akershus University College of Applied Sciences.

Community and reviews - we want to establish a community which can review and comment (and add metadata) on the books in our collection. The aim is to make this as open as possible, so it will be possible to exchange the reviews and metadata with other services as Goodreads, etc. We are very excited about this, because it will hopefully add a much needed social dimension to the collection; and if it could unite and inspire the SF community in Norway, the Nordic countries, and abroad, it would be fantastic.

Funding - resources - open invitation

As previously mentioned the further development of the collection and projects related to it, is limited to monetary and personnel resources. To evolve from a voluntary project based on interest, our scarce “free” work hours, free time and donations, we need to find sources for a steadier course into the future. Therefore we have issued an open invitation “*The science of the Science Fiction collection*”. If the reader should be interested in doing projects with us or on the collection alone, please contact with the authors. We are always on the lookout for new projects, partners and collaborators in our aim to use and develop the collection as wide and long as possible. The latter is especially important in times with downsizing of library budgets - supporters from the outside will be necessary to maintain “internal goodwill”.

Conclusions and visions for the future of the collection

The Science Fiction Collection at the Science Library of the University of Oslo may be a very new collection and may still be much smaller than more well established collections internationally, but it has been growing at a very rapid rate thanks to the enthusiastic community surrounding it. The collection is in a rapid and constant development, not only with regard to number of items and organizations, but also in use and applications. Much material is still waiting to be fully incorporated and catalogued, including a large number of magazines and fanzines, and we expect the collection to hit its 10 000 and 12 000-item mark within the next two years. Parallel with the collection growing, we continue the work with organization and development possibility for user-interaction in dialogue with the user community surrounding the collection. We also want to continue to inspire both our colleagues at the University Library and the greater public both through activity in the library facility, and will continue attending external events. Hopefully, we will experience that the ideas tested on this collection could be reused on others, and that the user engagement will have a contagion effect that inspires to develop collections and services together with the librarians. And we do aim for the bold ambition to be one of the best and most user-friendly SF collections in Europe.