Developing of Software Infrastructure for Research Domain at University of Novi Sad

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1. Project Overview
   - University
   - Goals

2. Results
   - CRIS UNS
   - PhD UNS
   - Export of data
   - Search
   - Publications

3. Further Steps
Outline

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 http://dosird.uns.ac.rs
The first faculty in Novi Sad was founded in 1954.
The University of Novi Sad was founded on 28th of June 1960.
Today, UNS represents an autonomous institution for education, science and arts.
Rectorate building

UNIVERSITY OF NOVI SAD-14 FACULTIES, 50,000 STUDENTS, 5,000 EMPLOYEES

Harmony of nature and modern architecture on the banks of the Danube-Rectorate Building
About project

- Software infrastructure for educational domain - well developed, but lack of software infrastructure for science
- The DOSIRD UNS project has been started in 2009 - http://dosird.uns.ac.rs/
- The project team - professors, scientists, PhD students and librarians of the University of Novi Sad
The main goal was to develop software infrastructure for research domain which will
- Improve discoverability of the University scientific outputs
- Improve ranking of the University
- Enhance scientific cooperation between the UNS researchers and researchers from all over the world
- Save scientific heritage of the University of Novi Sad
- Facilitate UNS research management
Specific goals

- Development of a research information system (CRIS UNS)
- Development of a digital library of Ph.D. dissertations defended at the University (PhD UNS)
- Development of the UNS institutional repository (not yet implemented, BEOPEN project started)
- Export data to the following networks of digital libraries and institutional repositories: DARTEurope, NDLTD, OATD, OpenAIRE+, etc
- Implementation of searching data through a web page and through a standardized protocol for Search/Retrieve via URL (SRU)
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Current Research Information System of University of Novi Sad

Under development since 2009

Fulfills all local requirements prescribed by

- the University
- government of the Autonomous province of Vojvodina and
- government of the Republic of Serbia

In accordance with international well-known research domain standards and protocols

Data about scientific outputs are stored in MARC 21 format

Architecture of the system enables an easy integration with LIS and CRIS
Usage statistic

- 700 users
- 30,000 scientific publications
Digital library of dissertations defended at the University of Novi Sad
- Under development since 2010
- Integrated as part of CRIS UNS
- The first version was put into operation in 2013 - link
Regulations of Ph.D. studies describes the current process of a Ph.D. dissertation submission.

This process has been modeled and implemented in CRIS UNS system - link.
Copyrights on a Ph.D. dissertation belong to a student who wrote the dissertation, not to an institution in which the dissertation has been defended.

Therefore, the legal department of the University created a statement which allows students to publish its dissertations under open-access license - link.

Since December of 2014, Ph.D. candidates must sign open-access statement which is in accordance with the new Serbian Regulations on Higher Education.
PhD linked publications

- More than 90% of PhD dissertations are in Serbian language
- Authors want to attract interest to their work to enhance their reputation both nationally and internationally
- At least one paper published in a journal belonging to the Web of Science JCR list
- Linking publications and PhD dissertations - paper, presentation
Usage statistic

- Metadata about all dissertation defended at the University since its foundation - 5,000
- Attached pdf files - 1,400
- Open-access pdf files - 1,250
- 250,000 downloads
Data Export Implementation

- The OAI-PMH protocol
- The OAICat library
- Format of data: MARC 21, Dublin Core, ETD-MS
- Only open-access PhD dissertation already defended can be exported - 1,000
Statistic

- NDLTD - 1,236
- NaRDUeS - 1,249
- OATD - 1,248
- OPENAire+ - 1,126
- DARTEurope - 1,266
The Apache Lucene library
- Serbian Analyzer - two alphabets, stemmer
- JSF + RichFaces
- CRIS UNS search page - link
- PhD UNS search page - link
CRIS UNS search page

- Conference and journal papers, monographs, theses
- 3 search modes
- CQL profile for CRIS systems - paper
- English and Serbian UI
PhD UNS search page

- Basic and advanced search
- Filtering results by publication year, faculties, defended/non defended
- Sorting results
- Results format, word cloud, download link, linked publications
- English and Serbian UI

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Early searchable

- A not defended PhD thesis is searchable
- But can’t be exported via OAI-PMH
Automatic recommendation system

- Implemented in collaboration with Joel Azzopardi - paper
- Download logs and Collaborative approach for recommendation are used
- 5 top recommended dissertations
- Evaluate the approach using explicit feedback
Word cloud

- Implemented in collaboration with Georgia Kapitsaki - paper
- Visual result representation
- Users select type of results representation
- Evaluate approach using implicit feedback
Personalization of search

- Re-ranking result list using recommendation and relevance score
- Evaluate approach using implicit feedback
Multilingual search

- Serbian, Bosnian, Croatian and Montenegrin languages are derived from Serbo-Croatian language (ex-Yugoslav official language)
- However, people from ex-Yu republics can communicate using their native languages
- Research question: Can researcher from Croatia make a query in Croatian language and find Serbian PhD dissertation?
- The first result (in collaboration with Colin Layfield) - paper
Scientific publications

- 4 PhD theses
- 10+ journal papers
- 20+ conference papers
- 1 Monograph which is awarded as the best research paper in Computer Science field in 2011 by Serbian Informatics Society
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Plans for Future Development

- Interoperability with BEOPEN
- Personalization of search
- The system reengineering
- Consolidation of data
Thank you for your attention!!!

If you have any questions, please do not hesitate to
- ask me now
- ask me during the meeting breaks
- contact me via email dragan.ivanovic@uns.ac.rs