http://www.bioasq.org

Workshop 1

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Executive Summary

The first BioASQ workshop took place on September 27th, 2013 in Valencia as a post-workshop to CLEF 2013. The workshop was designed to allow space for presentations which participated in the challenge as well as papers related to the area of bio-medical semantic indexing and question answering. 30 persons attended the 9 talks and the panel of workshop. This report gives a brief overview of the organization and execution of the workshop.

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Introduction

The goal of the first BioASQ workshop was mainly to further the interaction across the community all around the project. Given that the main aims of the project is to create a challenge for bio-medical semantic indexing and question answering, the main goal of the workshop was accordingly to (1) allow for challenge participants to present their systems, (2) present the challenge baselines and the technologies around it and (3) present the state of the art in the industrial uptake of bio-medical question answering. In the following, we give a brief overview of the workshop organization, the corresponding schedule and an overview of the results of the workshop evaluation by the participants.

2

Organization

We designed the workshop to be a venue where experts on semantic indexing and question answering could come together to present their work on the BioASQ data or related data. We thus sent an open call for papers on 20.06.2013 and 25.07.2013 to the following mailing lists:

- eetn@iit.demokritos.gr

- list-mm@iti.gr

- list-multi-mine@iti.gr

- kdnet-members@iais.fraunhofer.de

- dbhellas@hdms.gr

- DDLBETA@googlegroups.com

- editor1@kdnuggets.com

- uai@ENGR.ORST.EDU

- ml@isle.org

- ML-news@googlegroups.com

- researchers@pascal-network.org

- IRList@lists.shef.ac.uk

- majordomo@cs.wisc.edu

- uai@engr.orst.edu

- kdubiq_members@iais.fraunhofer.de

- kdnet-members@iais.fraunhofer.de

- IRList@lists.shef.ac.uk

- researchers@pascal-network.org

- dbitaly@list.dia.uniroma3.it

- eetn@iit.demokritos.gr

- all@liaad.up.pt

- rede@appia.pt

- cladlead@fpce.ul.pt

- sbc-l@sbc.org.br

- event@in.tu-clausthal.de

- corpora@uib.no

- bionlp@lists.ccs.neu.edu

- connectionists@csd.cmh.edu

- ml@isle.org

Moreover, a link to the call for papers was sent to LinkedIn groups (DM, NLP People, NLP Forum, ML, SW Analytics, Text Analytics and SYNC3) as well as tweeted. The text of the call for papers is added in the appendix. The call for participation was sent out on the 16.09.2013.

We received 8 submissions, which were reviewed by experts. For each submission, we ensured that we had at least three reviews. Problematic submissions were reviewed by 4 experts. Overall, we collected 30 reviews. Papers with an average evaluation score above or equal to 0.5 were accepted as full papers (12 pages) and were granted a 30-min talk. Papers whose average score was between 0 and 0.5 were accepted as short papers (6 pages) and were granted a 20-min talk. The resulting schedule is shown in Figure 2.1 and consisted of 4 full paper presentations, 3 short paper presentations and 2 invited talks by Alan R. Aronson (National Library of Medicine) and Jennifer Chu-Caroll (IBM Watson).

The workshop took place after CLEF 2013 and was advertised both during the main conference and the QA4MRE workshop, with which we will collaborate at CLEF 2014.

BioASQ Workshop Schedule

09:00 - 09:20	Welcome
09:20 - 10:20	Keynote: **Watson Beyond Jeopardy!: Adaptation to the Medical Domain, Jennifer Chu-Caroll, IBM Watson.**
10:20 - 10:50	Two hierarchical text categorization approaches for BioASQ semantic indexing challenge, Francisco J. Ribadas-Pena, Luis M. de Campos Ibanez, Victor M. Darriba-Bilbao and Alfonso E. Romero. [pdf]
10:50 - 11:10	Answering Factoid Questions in the Biomedical Domain, Dirk Weissenborn, George Tsatsaronis and Michael Schroeder. [pdf]
11:10 - 11:30	*Coffee break*
11:30 - 12:00	An Incremental Approach for MEDLINE MeSH Indexing, Dongqing Zhu, Dingcheng Li, Ben Carterette and Hongfang Liu. [pdf]
12:00 - 12:30	Evaluating feature selection methods for multi-label text classication, Newton Spolaor and Grigorios Tsoumakas. [pdf]
12:30 - 13:00	Identifying Publication Types Using Machine Learning, Antonio Jimeno-Yepes, James Mork and Alan Aronson. [pdf]
13:00 - 14:00	*Lunch*
14:00 - 15:00	Keynote: **Indexing the Biomedical Literature in a Time of Increased Demand and Limited Resources, Alan R Aronson, National Library of Medicine.**
15:00 - 15:20	The NLM Medical Text Indexer System for Indexing Biomedical Literature, James Mork, Antonio Jimeno-Yepes and Alan Aronson. [pdf]
15:20 - 15:40	Large-Scale Semantic Indexing of Biomedical Publications, Grigorios Tsoumakas, Manos Laliotis, Nikos Markantonatos and Ioannis Vlahavas. [pdf]
15:40 - 16:00	*Coffee break*
16:00 - 16:45	Overview of the first BioASQ challenge
16:45 - 17:00	Award Announcements
17:00 - 18:00	Panel Discussion

Figure 2.1: Schedule of the first BioASQ workshop

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Evaluation

We conducted an online evaluation of the workshop with the workshop participants during the workshop. Participants without internet access were provided with an analogue version of the same evaluation (see Figures 3.1 and 3.2). All members of the BioASQ team were excluded from the evaluation as they would have biased the result. Overall, 11 participants filled out the survey form. The results of the survey are as follows.

Dissemination

The dissemination seems to be working out well and reaching out potential participants. 36% of the participants were first reached via mail resp. personal contact. Most of the people who did not participate to the challenge did not do so because of time restrictions or lack of willingness. Only 1 participant did not participate because he did not know the project. Most participants were satisfied with the dissemination efforts of the project (e.g., one participant stated "I think you are doing really great with promotion."). One suggested "Emphasize the broad impact to the biomedical research community.", which will be taken into account for the next workshop.

Workshop Assessment Survey BioASQ

Short survey to assess the BioASQ workshop. More information on the project can be found at http://bioasq.org/.
* Required

General Information

Please provide us with information about your participation to the workshop

Where did you hear about BioASQ *

- ◉ Mailing List
- ○ Personal Contact
- ○ LinkedIn
- ○ Twitter
- ○ Other: [_____]

Did you participate in the challenge? *

- ○ No
- ○ Yes, in Task 1a only
- ○ Yes, in Task 1b only
- ○ Yes, in Task 1a and Task 1b

If not, why are you not participating?

- ○ Time restrictions
- ○ Not my area of research
- ○ BioASQ unknown so far
- ○ Other: [_____]

Are you planning to participate in the BioASQ track at CLEF 2014? *

- ○ No
- ○ Yes, in Task 2a
- ○ Yes, in Task 2b
- ○ Yes, in both tasks
- ○ Other: [_____]

Figure 3.1: First part of the BioASQ workshop assessment survey

Workshop Organization

Please evaluate the following parts of the workshop. *

	Very bad	Bad	OK	Good	Very good
Scientific presentations	○	○	○	○	○
Keynotes	○	○	○	○	○
BioASQ presentation	○	○	○	○	○
Panel discussion	○	○	○	○	○

Do you have any other suggestions to help us improve the organization of the workshop?

How could the promotion of the workshop be improved?

Personal Details

Name

Email Address

May we follow up with you if required?
○ Yes
○ No

Figure 3.2: Second part of the BioASQ workshop assessment survey

Question	Very bad	Bad	OK	Good	Very good
Quality of the scientific presentations			18%	36%	45%
Quality of the keynotes				9%	91%
Quality of the BioASQ presentation				18%	82%
Quality of the panel discussion				45%	55%

Table 3.1: Summary of the results of the workshop assessment

Quality of the workshop

The workshop itself was evaluated by the participants. To this end, the participants were provided with a 5-point scale (Very bad, Bad, OK, Good, Very Good) for the evaluation of four key aspects of the workshop. The results are summarized in Table 3.1. Based on these results, we conclude that the workshop was perceived as between good and very good. Suggestions with respect to improving the workshop included putting more emphasis on the breadth of the workshop and its importance for the bio-medical community around the world.

An important part of the self-evaluation was the discussion panel that was organized after the workshop. To achieve this goal, we invited the following experts from different institutions to give their point of view on the workshop:

- Alan Aronson (National Library of Medicine, USA)

- Jeniffer Chu-Caroll (IBM Watson, USA)

- Dietrich Rebholz-Schumann (University of Zurich, Austria)

- Udo Hahn (University of Jena, Germany)

The panel was led by George Paliouras. The experts were asked to focus on the following topic list:

1. Evaluation measures: Which work best and how do we combine them?

2. What's the role of Semantic Indexing in QA?

3. Dissemination of the benchmarks. How do we achieve:

   - A better relation to other challenges such as BioNLP and BioCreative
   - An increased participation
   - A good promotion of the social network

4. Would an oracle or open datasets be helpful?

5. What's the best evaluation format for QA? Online? Offline?

Overall, the contributions of the experts were as follows:

1. **Evaluation measures**: While the measures used for the evaluation are sensible and well-defined, a gold standard which allows the evaluation of subtasks could be useful. Moreover, summarization is very difficult to evaluate as no gold summary can be defined. Thus, the evaluation of Task 2b should be carried out with a lot of precaution. Moreover, the source for the summary could play a role in the evaluation.

2. **Semantic indexing in QA?**: The experts concur with the consortium that semantic QA and semantic indexing are deeply related and should be part of the next challenge. A focus on factoid questions might make the relation between the two tasks more explicit to external participants.

3. **Dissemination**: The large QA Track of which BioASQ with be a part next year was regarded as a great success. The best dissemination channel for the next month was regarded as two-fold: First, making the data or this year's challenge available and deploying the social network to allow the end users of the data to participate in the creation of the benchmark data. IBM suggested having a look into crowdsourcing answers, which was regarded by the consortium as a non-viable approach due to the target users of BioASQ.

4. **Oracle & data**: All experts were for having an oracle for the first version of the benchmark and allowing an online evaluation of possible participants.

4

Organization of Workshop 2

We are currently beginning to organize the second BioASQ workshop. After the successful collaboration with CLEF, we engaged into discussions with 4 existing CLEF labs, i.e., QALD, INEX-LD, eHealth and QA4MRE. We were able to join forces with QALD and QAMRE and will be part of the larger Question Answering lab at CLEF 2014, which will take place in Sheffield, England. We will contribute the two tracks "bio-medical semantic indexing" (Task 2a in the description of work) and "bio-medical question answering" (Task 2b). Given CLEF's review process (which requires that all system descriptions be accepted), we will strive to provide a venue for high-quality, peer-reviewed BioASQ papers to be published in a journal. We are currently discussing this prospect with the Journal of Bio-medical Semantics, which has an impact factor of 2.5.

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Appendix

5.1 Call for Papers

Apologies for multiple postings.
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BioASQ Workshop
Website: http://www.bioasq.org/news/bioasq-workshop
Project URL: http://www.bioasq.org/
Post-conference workshop after CLEF 2013, September 27, Valencia, Spain
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Scope

Every day, we generate 2.5 quintillion bytes of data. In domains such as bio-medicine, approximately 3000 new articles are published on the Web every day. This averages to more than 2 articles every minute. In addition to the sheer amount of information available on the Web, the variety of this information increases everyday and ranges for structured data in the form of ontologies to unstructured data in the form of documents. Staying on top of this huge amount of diverse data requires methods that allow detecting and integrating portions of datasets that satisfy the information need of given users from sources such as documents, ontologies, Linked Data sets, etc. Developing tools to achieve this bold goal requires combining techniques from several disciplines including Natural Language Processing (e.g., question answering, document summarization, ontology verbalization), Information Retrieval (e.g., document and passage retrieval), Machine Learning (e.g., large-scale hierarchical classification, clustering, etc.), Semantic Web/Linked Data (e.g., reasoning, link discovery) and Databases (e.g., storage and retrieval of triples, indexing, etc.).

The aim of the BioASQ workshop is to bring experts from these domains together in order to push the research frontier towards hybrid information systems that will be able to deal with the whole diversity of the Web, especially for, but not restricted to the context of bio-medicine. During the workshop, the results of the open BioASQ challenge will also be presented.

The topics of interest include (but are not restricted to):

- Large-scale hierarchical text classification

- Large-scale classification of documents onto ontology concepts (semantic indexing)

- Classification of questions onto ontological concepts

- Scalable approaches to document clustering

- Text summarization, especially multi-document and query-focused summarization

- Verbalization of structured information and related queries (RDF, OWL, SPARQL, etc.)

- Question Answering over structured, semi-structured and unstructured data

- Reasoning for information retrieval and question answering

- Information retrieval over fragmented sources of information

- Efficient indexing and storage structures for information retrieval

- Delivery of the retrieved information in a concise and user-understandable form

Papers are to be submitted in the LNCS format. We accept both short (max. 6 pages) and long submissions (max. 12 pages). All submissions must be carried out on EasyChair (https://www.easychair.org/conferences/?conf=bioasq2013). The proceedings will be published at http://ceur-ws.org/.

Important dates

- Submission Deadline: August 15th, 2013

- Notification of acceptance/rejection: August 31st, 2013

- Camera-Ready Deadline: September 15th, 2013

- Workshop: September 27th, 2013

Organization

The BioASQ project, led by George Paliouras, NCSR Demokritos, Greece.

5.2   Call for Participation

[please distribute - apologies for multiple postings]

BioASQ workshop on biomedical semantic indexing and question answering
Post-conference workshop after CLEF 2013
http://www.bioasq.org/workshop/
Call for participation
September 27th, 2013
Technical University of Valencia (Universitat Politecnica de Valencia), building 1E

Registration (NO FEE FOR REGISTRATION)

To register, please visit: http://www.bioasq.org/workshop/register-bioasq-workshop-1

Schedule

The schedule of the workshop can be found at `http://www.bioasq.org/workshop/schedule`. It includes 10 talks, among which two invited talks on:

- Watson Beyond Jeopardy!: Adaptation to the Medical Domain, by Jennifer Chu-Caroll of IBM Research.

- Indexing the Biomedical Literature in a Time of Increased Demand and Limited Resources, by Alan R Aronson of the National Library of Medicine.

The winners of the BioASQ challenge will also be announced at the workshop.

Looking forward to seeing you there,
The BioASQ team.