

# Hiba Arnaout

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## EDUCATION

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<b>Max Planck Institute for Informatics &amp; Saarland University</b> <i>PhD in Computer Science</i> Advisors: Dr. Simon Razniewski & Prof. Gerhard Weikum	Feb 2018 - Exp. May 2023 <i>Saarbrücken, Germany</i>
<b>American University of Beirut</b> <i>Master of Computer Science, GPA: 3.7 / 4.0</i> Advisor: Prof. Shady Elbassuoni	Feb 2014 - Feb 2017 <i>Beirut, Lebanon</i>
<b>Haigazian University</b> <i>Bachelor of Computer Science, GPA: 3.6 / 4.0</i>	Feb 2010 - Jun 2013 <i>Beirut, Lebanon</i>

## PUBLICATIONS

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- Simon Razniewski, [Hiba Arnaout](#), Shrestha Ghosh, and Fabian Suchanek. “Completeness, Recall, and Negation in Open-World Knowledge Bases: A Survey”. *Semantic Web Journal (SWJ)*, 2023 (under review).
- [Hiba Arnaout](#), Simon Razniewski, Gerhard Weikum, and Jeff Z. Pan. “UnCommonSense: Informative Negative Knowledge about Everyday Concepts”. *ACM International Conference on Information and Knowledge Management (CIKM)*, 2022 (to appear).
- [Hiba Arnaout](#), Trung-Kien Tran, Daria Stepanova, Mohamed Hassan Gad-Elrab, Simon Razniewski, and Gerhard Weikum. “Utilizing Language Model Probes for Knowledge Graph Repair”. *Wikiworkshop at The Web Conference*, 2022.
- [Hiba Arnaout](#), Simon Razniewski, Gerhard Weikum, and Jeff Z. Pan. “Negative Statements Considered Useful”. *Journal of Web Semantics (JWS)*, 2021.
- [Hiba Arnaout](#), Simon Razniewski, Gerhard Weikum, and Jeff Z. Pan. “Negative Knowledge for Open-world Wikidata”. *Wikiworkshop at The Web Conference*, 2021.
- Aditya B. Biswas, [Hiba Arnaout](#), and Simon Razniewski. “Neguess: Wikidata-entity Guessing Game with Negative Clues”. *International Semantic Web Conference (ISWC)*, 2021.
- [Hiba Arnaout](#), Simon Razniewski, Gerhard Weikum, and Jeff Z. Pan. “Wikinegata: A Knowledge Base with Interesting Negative Statements”. *Very Large Data Base Endowment Inc. (VLDB Endowment)*, 2021.
- [Hiba Arnaout](#), Simon Razniewski, and Gerhard Weikum. “Enriching Knowledge Bases with Interesting Negative Statements”. *Conference on Automated Knowledge Base Construction (AKBC)*, 2020 - audience-choice best paper award.
- Chandana Tennakoon, Nazar Zaki, [Hiba Arnaout](#), Shady Elbassuoni, Wassim El-Hajj, and Alanoud Al Jaber. “Biological Knowledge Graph Construction, Search, and Navigation”. *Leveraging Biomedical and Healthcare Data (book)*, 2019.
- [Hiba Arnaout](#) and Shady Elbassuoni. “Effective Searching of RDF Knowledge Graphs”. *Journal of Web Semantics (JWS)*, 2018.
- Hrag Yoghoudjian, Shady Elbassuoni, Mohamad Jaber, and [Hiba Arnaout](#). “Top-k Keyword Search over Wikipedia-based RDF Knowledge Graphs”. *International Conference on Knowledge Discovery and Information Retrieval (KDIR)*, 2017 - best student paper award nominee.
- [Hiba Arnaout](#) and Shady Elbassuoni. “Result Diversity for RDF Search”. *International Conference on Knowledge Discovery and Information Retrieval (KDIR)*, 2016.

## EXPERIENCE

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### **PhD Project Researcher**

*Max Institute for Informatics*

Mentor: Dr. Simon Razniewski & Prof. Gerhard Weikum

Defined research problem of identifying informative negative knowledge in existing positive-only knowledge bases. Developed solutions to infer/extract them from the KB itself/text. Experimented over large-scale encyclopedic and commonsense knowledge bases. Implemented an online platform to showcase these methods. Work resulted in publications at CIKM, VLDB, ISWC, and AKBC.

Feb 2018 – Present  
*Saarbrücken, Germany*

### **Automated KB Construction Course Tutor**

*Saarland University*

Tutoring Automated Knowledge Base Construction course. Responsible for tutorials on entity typing, taxonomy induction, and entity disambiguation. Served as second examiner in the final oral exam.

Apr 2022 – Jul 2022  
*Saarbrücken, Germany*

### **Research Intern**

*Bosch Center for Artificial Intelligence*

Mentor: Dr. Daria Stepanova

Developed a new solution for repairing erroneous statements in inconsistent knowledge graphs. The method explore the power of language models context-extended probes for retrieving factual knowledge.

Jun 2021 – Mar 2022  
*Renningen, Germany*

### **Visiting Researcher**

*The University of Edinburgh*

Mentor: Dr. Jeff Z. Pan

Developed a new solution for repairing erroneous statements in inconsistent knowledge graphs. The method explore the power of language models context-extended probes for retrieving factual knowledge.

Feb 2020 – Aug 2020  
*Edinburgh, United Kingdom*

### **IRDM Course Tutor**

*Saarland University*

Tutoring Information Retrieval and Data Mining course. Responsible for tutorial sessions and correcting final exam.

Oct 2019 – Feb 2020  
*Saarbrücken, Germany*

### **Document Control Administrator**

*American University of Beirut*

Worked as system administrator for a university-policies management system at the office of the Provost. This included creating/important user information of hundreds of employees, monitoring policy-reviewing process, preparing tutorials for and training end users.

Jan 2016 – Dec 2017  
*Beirut, Lebanon*

### **Research Assistant and Master's Project Researcher**

*American University of Beirut*

Developed a method for effective searching over large scale knowledge bases using keyword-extended triple-pattern queries. Implemented a ranking algorithm which relies on statistical measures, which performs automated query relaxation for higher recall. Defined the notion of result diversity in the RDF search setting using and implemented a diversification model using Maximal Marginal Relevance. Work resulted in publications at JWS and KDIR.

Feb 2014 – Jan 2018  
*Beirut, Lebanon*

### **IT Instructor**

*American University of Beirut & United Nations*

Responsible for training young adult refugees on basic technological skills, e.g., writing Excel functions, designing logos on Adobe Photoshop. Preparing and presenting lectures, tutorials, and exams.

Mar 2017 – Sep 2017  
*Beirut, Lebanon*

### **Teaching Assistant**

*American University of Beirut*

Lead laboratory sessions and correct assignments and exams of undergraduate computer science courses: Algorithms and Data Structures, Computers & Programming for the Arts and Sciences, and Introduction to Computing Systems.

Feb 2014 – Dec 2016  
*Beirut, Lebanon*

## TALKS

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- Completeness, Recall, and Negation in Open-World Knowledge Bases (with Simon Razniewski, Shrestha Ghosh, and Fabian Suchanek), *tutorial at KR 2021, ISWC 2021, and WWW 2022*.
- On the Limits of Machine Knowledge: Completeness, Recall and Negation in Web-scale Knowledge Bases (with Simon Razniewski, Shrestha Ghosh, and Fabian Suchanek), *tutorial at VLDB 2021*.
- Enriching Knowledge Bases with Interesting Negative Statements, *Forum for presentations of significant Semantic Web-related research at ISWC 2020*.

## SERVICE

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**Reviewer:** JWS ('22), EMNLP ('21,'22), IJCAI ('21,'22), CIKM ('20,'21), ISWC ('20, '21), ACL ('20).  
**Volunteer:** VLDB ('21).

## SCHOLARSHIPS AND AWARDS

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Reward for invention 2022/2365 “Knowledge Graph Repair Using Ontologies and LMs”, Bosch, 2022.  
Participated in discussion, DFG grant of €312,000 for compiling negative knowledge at web scale, 2021.  
Audience-choice Best Paper Award at AKBC, 2020.  
Best Student Paper Award Nominee at IC3K'17, 2017.  
Full Graduate Assistantship at the American University of Beirut, 2014.  
Bachelor of Science in Computer Science with Honors at Haigazian University, 2013.  
Dean’s honor list at Haigazian University, 2011, 2012, and 2013.

## STUDENT SUPERVISION

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Aditya Bikram Biswas (Master’s student), 2021.  
Mang Zhao (Master’s student), 2018.

## OTHER ACTIVITIES

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Reasoning Web Summer School, RW, 2019.  
Lisbon Machine Learning School, LxMLS, 2018.

## TECHNICAL SKILLS

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**Programming Languages:** JAVA (2010-2020), Python (2019-2022), SQL (2012-2020), JavaScript (2013, 2019), PHP (2013), limited skills in VBA and Prolog.  
**Markup Languages:** HTML, LaTeX.  
**Libraries:** Hugging Face Transformers, Weka.  
**Developer Tools:** Anaconda, Spyder, Eclipse.  
**Software and OS:** PostgreSQL, MongoDB, Adobe Photoshop/Dreamweaver, Microsoft Excel/PowerPoint/Word/Access, Wondershare Filmora, ArcGIS, GitHub, Linux, Windows.

## LANGUAGES

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Arabic (*native*)  
English (*fluent*, CERF level C1)  
German (*intermediate*, DTZ Zertifikat B1)  
French (*conversational*)