

AMGAD MADKOUR

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<http://amgadmadkour.com>

PROFILE

A seasoned technology leader with over +10 years of experience in transforming business strategies into scalable products. Expertise spans across Artificial Intelligence, Knowledge Graphs, Data Management, and Data Integration. Proven ability to deliver on highly ambiguous projects through incremental delivery, ensuring maximum business value. Experienced in leading multiple cross-functional engineering and science teams, overseeing program execution, and creating and tracking success metrics. Currently managing a team of 10 professionals, including Software Engineers and Applied Scientists, focused on building large-scale products that leverage various data management and artificial intelligence techniques to deliver significant value to users.

EDUCATION

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| Purdue University PhD Computer Science | <i>December 2018</i> |
| American University in Cairo MSc Computer Science | <i>June 2009</i> |
| Arab Academy for Science and Technology BSc Computer Science | <i>June 2003</i> |

EXPERIENCE

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| Microsoft <i>Principal Data Science Manager</i> | September 2024- Present <i>Redmond, USA</i> |
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- Led the engineering and science work for the product tracking platform on Microsoft Copilot and Edge.
- Doubled the growth of product tracking through FY24, enhancing user shopping intent insights.
- Introduced innovative features that extract user's shopping intent to enhance Shopping experience on Microsoft's platform.

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| Microsoft <i>Senior Data Science Manager</i> | March 2022- September 2024 <i>Redmond, USA</i> |
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- Led the development of Microsoft Autos AI Assistant, the first assistant on an autos marketplace using generative models.
- Spearheaded the creation of "My Garage" for Microsoft Autos Marketplace, consolidating user vehicle data from various sources.
- Developed autos entity frameworks for Bing, MSN, and Microsoft Autos Marketplace.

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| Microsoft <i>Data & Applied Scientist</i> | March 2022- September 2024 <i>Redmond, USA</i> |
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- Lead the fine-tuning of the machine learning model used for extracting product information on edge.
- Proposed a graph representation that captures relations between fresh entities and articles from the news domain.
- Created an entity linking service for annotating news articles on Microsoft's deep learning inference service.
- Proposed the initial guideline for generating tabs based on web documents instead of query logs through the use of techniques such as topic modelling and keyword extraction.

- Reduced the resource usage (both computation and storage by 50%) for entity matching workflows by optimizing the blocking technique used for entity matching (Indexing & Candidate Generation). This translates into huge computational saving and allows processing more workflows on the cluster.
- Implemented the Bing Satori entity matching stack end-to-end for another computational platform (i.e. Spark)
- Performed an analysis to deprecate tens of sources from the pipeline that were outdated or unusable either through semi-automatic evaluation methods or through verifying with source owners.
- Identified source gaps between streaming and batch pipelines and onboarded missing sources.

Microsoft

Data Scientist Intern

May 2018-Aug 2018

Greater Seattle Area, USA

- *Conflation Updates*: Designed and implemented a conflation update component that is responsible for speeding up the reflection of conflation changes into the Satori final graph.

Microsoft Research/Bing

Research Intern

May 2015-Aug 2015

Greater Seattle Area, USA

- *Dependency parsing*: Conducted a series of experiments ranging from Up-training to Entity Linking to improve the dependency parsing accuracy.

Yahoo!

PhD Intern

May 2011-Aug 2011

Sunnyvale, USA

- *Recommendation system*: Developed a recommendation system for local businesses.

IBM

Research Engineer

Jan 2006- July 2010

Cairo, Egypt

- *Tag Recommendation Technique*: Co-Invented and patented a k-partite graph technique for recommendation of tags during bookmarking of resources.
- *Spam Detection*: Proposed a set of features that identify spamming bookmarks in social media and evaluated their feasibility over various machine learning algorithms.
- *Extracting relations from biomedical text*: Developed a system that automatically extracts interactions between entities such as proteins, chemicals, and diseases from biomedical text with preliminary focus on protein-protein interactions.
- *Machine Assisted Translation*: Developed a system that provides suggestions when translating documents. The system uses a continuous space language models for statistical machine translation.
- *Unstructured Information Management Platform*: Participated in a joint development with Watson lab in Yorktown to develop a system that analyzes large volumes of unstructured textual information from the news domain to discover, organize, and deliver relevant knowledge to end-users.

SELECTED AWARDS

Industry

IBM Award Of Achievement, 2006

PATENTS

Amgad Madkour, Hany Hassan, "SELECTING A DATA ELEMENT IN A NETWORK", United States Patent, Granted Nov 19, 2013.

Amgad Madkour, Saleh Basalamah "SYSTEM, DEVICE AND METHOD FOR TRACKING PRAYER", United States Patent, United States Patent, App. 14/391,219, 2016.

SELECTED PUBLICATIONS

Amgad Madkour, Ahmed M. Aly, Walid G. Aref, “**WORQ: Workload-Driven RDF Query Processing**”, ISWC 2018

Amgad Madkour, Walid G. Aref, Sunil Prabhakar, Mohamed Ali, Siarhei Bykau, “**TrueWeb: A Proposal for Scalable Semantically-Guided Data Management and Truth Finding in Heterogeneous Web Sources**”, Semantic Big Data at SIGMOD 2018

Amgad Madkour, Walid G. Aref, Ahmed M. Aly, “**SPARTI: Scalable RDF Data Management Using Query-Centric Semantic Partitioning**”, Semantic Big Data at SIGMOD 2018

Amgad Madkour, T Hefni, A Hefny, K Refaat, “**Using Semantic Features to Detect Spamming in Social Bookmarking Systems**”, ECML PKDD 2008

Amgad Madkour, K. Darwish, Hany Hassan, Ahmed Hassan, Ossama Emam, “**BioNoculars: Extracting relations between entities from biomedical documents using a fully unsupervised Statistical Approach**”, BioNLP at ACL 2007

SELECTED ACTIVITIES AND VOLUNTEER WORK

- Memberships**
- * Egypt Scholars, Volunteer developing software for the visually impaired
 - * Purdue CS Graduate Student Board, Travel Grants Chair - (2013-2014)
 - * IBM Open Client for Linux Champions Program, Member (2009-2010)