

# AMIRA GHENAI

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## RESEARCH INTEREST

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Computational Social Sciences, Social Media Analysis, Online Misinformation/Disinformation, Information Retrieval, Machine Learning, Human Computer Interaction

## TEACHING INTEREST

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Programming, Data Analytics, Statistics, Human Computer Interaction, Data Structure, Information Retrieval, and Databases

## SUMMARY OF QUALIFICATIONS

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**Publications** Well-established research track record with notable conference publications

**Teaching** taught two computer science introductory course, hold the “Fundamentals of University Teaching” certificate

**Awards & Fellowships** AGE-WELL Graduate Student and Postdoctoral Award in Technology and Aging (15% acceptance rate), Qatar Research Leadership Program Doctoral Fellowship 2012-2018

**Service** Served as program committee member and reviewer for top-tier conferences and journals

**Spoken Languages** English (Bilingual), French (Proficient)

## EDUCATION

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### PhD in Computer Science

*Dec 2019*

Department of Mathematics, University of Waterloo - Waterloo, ON

PhD thesis: *Health Misinformation in Search and Social Media*

URL: <https://uwspace.uwaterloo.ca/handle/10012/15268>

Supervisors: Dr. Charles L. A. Clarke, Dr. Mark D. Smucker

Relevant Courses: Applied Machine Learning, Search and Recommendation, Challenges in Big Data Quality, Data Structures and Standards in Health Informatics

### Summer School Series on Methods for Computational Social Science

*Jul 2017*

Topic: *Methods for capturing, analyzing and modeling digital trace data*

Learned about using digital trace data to answer social sciences research questions (e.g., pro-social behavior, consensus or mobility)

Conducted projects under lecturers' supervision to apply the newly learned methods

### Masters of Science in Computing (Software Engineering) with Merit

*Nov 2013*

Department of Computing, Imperial College London - London, UK

Disertation title: *Exploring Trust-Aware Neighbourhood in Trust-based Recommendation*

URL: <https://arxiv.org/abs/1608.05380>

Supervisor: Dr. Moustafa M.Ghanem

Relevant Courses: Distributed and Parallel Algorithms, Advanced Databases, Software Engineering

### Bachelor of Science in Computer Engineering with Honors

*Jan 2011*

Department of Computer Science and Engineering, Qatar University - Qatar

Disertation title: *Data Analysis Using MapReduce Programming Model on the Cloud*

URL: [https://cs.uwaterloo.ca/~aghenai/assets/publications/design\\_project.pdf](https://cs.uwaterloo.ca/~aghenai/assets/publications/design_project.pdf)

Supervisor: Dr. Qutaibah M. Malluhi

Relevant Courses: AI, Cloud Computing, Computer Networks, Computer Interfacing

Member of Vice President list, Member of the dean's list

## HONORS & AWARDS

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### *Scholarships and Fellowships*<sup>1</sup>

- AGE-WELL Graduate Student and Postdoctoral Award in Technology and Aging, \$20,000 over 1 year (Acceptance rate **15%**) 2020 – 2021
- Waterloo University Graduate Research Studentship, \$13,000 over two terms 2019
- Qatar Research Leadership Doctoral Fellowship, Qatar Foundation, \$200,000 over 4 yrs 2014 – 2018
- Qatar Research Leadership Program Scholarship, Qatar Foundation, \$50,000 over 1 yr 2012 – 2013
- High School Excellence Scholarship, Algerian Embassy in Qatar, \$40,000 over 5 yrs 2006 – 2011

### *Travel Awards*

- ACM SIGIR Travel Award, ACM 2017
- Travel Awards, Department of Computer Science, Waterloo University 2017
- Travel Awards, Qatar Computing Research Institute, Qatar 2017
- Computational Social Science Summer School Travel Award, Waterloo University 2017
- Travel Award for Grace Hopper Celebration, WiCS, Waterloo University 2016
- MLDA Symposium Travel Award, Qatar Foundation 2015

## RESEARCH EXPERIENCE

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### **Postdoctoral Fellow**

*Feb 2020 – present*

Accessible Computing Technologies Research Group, McGill University - Montreal, QC

Supervisor: Dr. Karyn Moffatt

Using qualitative methods to study older adults' challenges with online misinformation, to measure older adults' exposure to COVID-19 misinformation, and to design a platform that helps Canadian older adults deal with misinformation

### **Researcher** (Part-time/Remote)

*May 2020 – Dec 2020*

Ryerson University Social Media Lab - Toronto, ON

Supervisors: Dr. Anatoliy Gruzd & Dr. Philip Mai

Identifying COVID-19 vaccine-related misinformation messages on Twitter and building the retweet propagation patterns to explore the misinformation spread on Twitter

### **Doctoral Researcher**

*Sep 2014 – Dec 2019*

Department of Mathematics, University of Waterloo - ON

Supervisors: Dr. Charlie L. A. Clarke, Dr. Mark D. Smucker

Employed large-scale social media data analysis tools to understand how health misinformation spreads in Twitter, designed controlled user-centered studies to study the effect of health misinformation on people's decisions during online search.

### **Research Associate**

*Jan 2013 – Jul, 2013*

Qatar Computing Research Institute, Qatar Foundation - Qatar

Supervisor: Dr. Carlos Castillo

Collected news related tweets using Twitter API and tracked tweets news propagation on Twitter

### **Research Assistant**

*Sep 2011 – Jun 2012*

Qatar Computing Research Institute, Qatar Foundation - Qatar

Supervisor: Dr. Sihem Amer-Yahia

Clustered Al-Jazeera news articles based on topics using LDA and Open-Calais tool, used Mechanical-Turk for evaluating the clusters, and built a dashboard to visualize the articles dynamics which helps journalists gather insights about topics

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<sup>1</sup>Scholarship values are approximated

**Undergraduate Research Assistant**

Oct 2009 – Aug 2011

Department of Computer Science and Engineering, Qatar University - Qatar

Supervisor: Dr. Qutaibah Malluhi

Used map reduce programming model to build an inverted index of text documents and built a interactive Java user interface to search for specific keywords

**TEACHING AND ADVISING**

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**Guest Lecturer**

School of Information Studies, McGill University - Montreal, QC

Nov 2020

- Title: The think-aloud method for system usability analysis
- Course: Usability Analysis and Assessment (graduate course)

Department of Mathematics, University of Waterloo - Waterloo, ON

Oct 2018

- Title: Fake Cures: User-centric Modeling of Health Misinformation in Social Media
- Course: Topics in AI/Trust and Online Social Networks (graduate course)

**Undergraduate Student Supervisor**

Mar – Jul 2020

Xueguang Ma, Undergraduate research assistant of Dr. Robin Cohen

- Supervised research tasks, set goals, monitored productivity, and provided constructive feedback

**Lab Instructor (Instructional Apprentice - IA)**

Fall 2017/Winter 2017

Department of Mathematics, University of Waterloo - Waterloo, ON

- Conducted tutorials for the basic concepts in computer science course using Python. Among the topics covered: strings and lists, recursion, searching, sorting and graph theory
- Taught labs for the foundational concepts in computer science course using Racket. Among the topics covered: design recipe, compound data structures, lists, recursion, binary and general trees
- Assisted students with assignments and grade and proctor mid-term and final exams
- Received an excellent course evaluation as lab instructor

**Fundamentals of University Teaching program**

Mar 2017

Centre For Teaching Excellence (CTE), University of Waterloo - Waterloo, ON

- Received the *Fundamentals of University Teaching* certificate accredited by the *Canadian Educational Developers Caucus*
- Participated in 6 university teaching workshops offered by CTE including: teaching methods, classroom delivery skills, effective lesson plans, and giving quality feedback to enhance teaching skills
- Conducted three microteaching sessions aimed to practice different teaching skills
- Delivered three mini lessons to practice giving and receiving feedback on teaching methods

**Teaching Assistant - TA**

Spring 2017/Fall 2016

Department of Mathematics, University of Waterloo - Waterloo, ON

- Graded ten assignments and two exams per term for the undergraduate course “propositional logic”
- Among the topics covered in this course are: syntax and semantics of propositional logic, natural deduction, soundness and completeness, analysis of functional programs and program verification
- Received an excellent course evaluation as teaching assistant

**Peer Tutor**

Sep 2008 - Jun 2009

Student Support Learning Centre, Qatar University - Qatar

- Tutored basic and advanced Math and Calculus subjects
- Tutored basic data structure courses using Java and C++ as programming languages
- Presented the Student Support Learning Centre in the National Tutoring Association conference

## PUBLICATIONS

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### *Refereed papers<sup>2</sup>*

- **Amira Ghenai**, Mark D. Smucker and Charles L. A. Clarke. 2020, March. A Think-Aloud Study about Medical Misinformation in Search Results. The 5th ACM **CHIIR** Conference on Human Information Interaction and Retrieval, Vancouver, Canada. (37%)
- **Amira Ghenai**, Yelena Mejova, 2018, November. Fake Cures: User-centric Modeling of Health Misinformation in Social Media. The 21st ACM **CSCW** Conference on Computer-Supported Cooperative Work and Social Computing, New York City's Hudson River (Jersey City). (27%)
- **Amira Ghenai**, Yelena Mejova, August 23-26, 2017. Catching Zika Fever: Application of Crowdsourcing and Machine Learning for Tracking Health Misinformation on Twitter. The 5th IEEE **ICHI** International Conference on Healthcare Informatics. Park City, Utah. USA. (27%)
- Frances Pogacar, **Amira Ghenai**, Mark D. Smucker, Charles L. A. Clarke, October 1-4, 2017. The Positive and Negative Influence of Search Results on People's Decisions about the Efficacy of Medical Treatments. The 3rd ACM **ICTIR** International Conference on the Theory of Information Retrieval, Amsterdam. Netherlands. (54%)
- Sihem Amer-Yahia, Samreen Anjum, **Amira Ghenai**, Aysha Siddique, Sofiane Abbar, Sam Madden, Adam Marcus and Mohammed El-Haddad, May, 2012. Maqsa: a system for social analytics on news. The 2012 ACM **SIGMOD** International Conference on Management of Data (pp. 653-656), Arizona. USA. (17%)

### *Paper under review*

- Robin Cohen, Karyn Moffatt, **Amira Ghenai**, Andy Yang, Margaret Corwin, Gary Lin, Raymond Zhao, Yipeng Ji, Alexandre Parmentier, Jason PNg, Wil Tan and Lachlan Gray. Addressing Misinformation in Online Social Networks: Diverse Platforms and the Potential of Multiagent Trust Modeling. Information Journal - special issue: "Tackling Misinformation Online"

### *Doctoral Consortium*

- **Amira Ghenai**, Jul 2-5 , 2017. PhD Track: Health misinformation in search and social media, ACM Digital Health, London. UK
- **Amira Ghenai**, August 6-11 , 2017. Doctoral Consortium: Health misinformation in search and social media, SIGIR'17, Tokyo. Japan

### *Posters/Workshops*

- **Amira Ghenai**, Mark D. Smucker and Charles L. A. Clarke. 2019, July. A Think-Aloud Study about Medical Misinformation in Search Results. ACM SIGIR 2019 Workshop on Reducing Online Misinformation Exposure (ROME), Paris, France.
- **Amira Ghenai**, Daniel J. Lizotte , March 2015. What makes a review useful, funny or cool on Yelp.com? Machine Learning and Data Analytics Symposium MLDAS 2015, Doha. Qatar

### *Unrefereed papers*

- **Amira Ghenai**, Moustafa M.Ghanem, August, 2016. Exploring Trust-Aware Neighbourhood in Trust-based Recommendation. arXiv preprint arXiv:1608.05380
- **Amira Ghenai**, Eldar Khalilov, Pavel Valov, Charles L. A. Clarke, November, 2015. WaterlooClarke: TREC 2015 Clinical Decision Support Track. TREC Conference 2015, Maryland, USA
- **Amira Ghenai**, Nabiha Asghar, April, 2015. Automatic Discovery of Functional Dependencies and Conditional Functional Dependencies: A Comparative Study. University of Waterloo

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<sup>2</sup>Where available, acceptance rates are provided in brackets.

## INVITED TALKS

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- **Designing Systems to Better Address the Problem of Misinformation** Mar 2020  
Women in Data Science Conference. Ottawa, ON
- **A Think-Aloud Study to Understand Factors Affecting Online Health Search** Oct 2019  
School of Information Studies, McGill University. Montreal, QC
- **The Positive and Negative Influence of Search Results on People's Decisions about the Efficacy of Medical Treatments** Dec 2017  
Research collaboration talk between Waterloo university and Google Inc. Mountain View, CA
- **Health Misinformation in Search and Social Media** Aug 2017  
ACM SIGIR'17 conference, Tokyo. Japan
- **Health Misinformation in Search and Social Media** Jul 2017  
ACM Digital Health'17 conference, London. UK
- **Zika Misinformation Tracking in Social Media** Sep 2016  
Qatar Computing Research Institute, Doha. Qatar
- **What Makes a Review Useful, Funny or Cool on Yelp.com** Nov 2015  
The Second Machine Learning and Data Analytics (MLDAS) Symposium, Doha. Qatar
- **Discovering Conditional Functional Dependencies** Mar 2015  
University of Waterloo. ON

## REVIEWING

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- **Program Committee Member**, TheWebConf 2021 Oct 2020
- **Reviewer**, The Journal of Medical Internet Research (JMIR) Sep 2020
- **Reviewer**, ACM CSCW Jun 2020
- **Reviewer**, The Journal of Medical Internet Research (JMIR) Jun 2020
- **Program Committee Member**, ACM Conference on Digital Health Jul 2019
- **Program Committee Member**, ACM Conference on Digital Health Jul 2018
- **Program Committee Member**, The 27th World Wide Web Conference Apr 2018
- **Program Committee Member**, ACM Conference on Digital Health Jul 2017

## SERVICE AND LEADERSHIP EXPERIENCE

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- **Committee Member**, Women in Computer Science, University of Waterloo Jan 2015 – Apr 2017
- **Judge** in a programming competition for grade 8 girls, University of Waterloo Oct 2015
- **Member**, Student Scientific Research Club, Qatar University Jan 2007 – Dec 2010
- **Volunteer**, The 17th International Conference on Telecommunications 2010 Apr 2010
- **Volunteer**, The 11th International Conference on Relational Methods in CS Nov 2009
- **Orientation Volunteer**, Qatar University Orientation Day, Qatar Aug 2009

## MEDIA APPEARANCE

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- **Search results influence people's decisions about treatment effectiveness** Mar 2018  
Article published by Joe Petrik. Cheriton School of Computer Science News
- **Think twice before consulting Dr. Google, researchers say.** Apr 2018  
Interview with Kelly Crowe. CBC NEWS
- **Is searching for health information online a good idea?.** Apr 2018  
Interview with Su-Ling Goh. Global News - Edmonton
- **Health misinformation in online search.** Apr 2018  
Interview with Mike Farwell. 570 News - The Mike Farwell Show

## INDUSTRY/INTERNSHIP EXPERIENCE

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- **Data Scientist Intern**, Thomson Reuters Labs - ON Feb – Apr 2018  
Applied entity extraction to legal documents (extract main parties, term duration, etc.).  
Used fuzzy matching techniques to find targeted entities.  
Participated in communicating findings to stakeholders using visualization tools.
- **Service Desk Agent**, Hewlett-Packard - Qatar Apr – Aug 2011  
Troubleshooted IP Telephony phones & managed web mail server issues and user accounts  
Remotely downloaded desktop software, and troubleshooted Enterprise Resource Planning (ERP) system
- **Intern**, Al-Jazeera Network - Qatar Jul – Aug 2009  
Configured IP Telephone administration, local area implementation  
Actively participated in cover switching, cabling and server farm migration preparation

## TECHNICAL SKILLS

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- **Programming:** Java, Python (NumPy, Scikit-learn), Bash, R, PHP, JavaScript
- **Database/Distributed Systems:** Hadoop/PIG, SQL, MySQL, PostgreSQL
- **Data Mining:** machine learning(linear/logistics regression, discriminant analysis, bagging, random forest, SVM), data extraction and cleaning
- **Natural Language Processing:** text parsing, HTML parsing, stemming, POS tagging, phrase extraction, named entity extraction, topic discovery
- **Information Retrieval:** Lemur/Indri (Java), Terrier (Java), query expansion, crowd-sourced evaluation (Mechanical Turk, CrowdFlower)
- **Code/Project Management:** Google Colab, Jupyter, Git
- **APIs:** Twitter, JSON