

# Hussain Hussain

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## EDUCATION

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- **PhD in Computer Science (Ongoing)** Dec 2019 – Dec 2024  
*Graz University of Technology*  
Graz, Austria
  - Focus: **Machine learning on graphs**
  - Advisor: Dr. Roman Kern
- **MSc in Computer Science; graduated with distinction** Oct 2017 – Nov 2019  
*Graz University of Technology*  
Graz, Austria
  - Thesis title: **Graph Embedding for Trust-based Recommender Systems**
- **BE in Information Technology; graduated with distinction** Oct 2011 – Dec 2016  
*Al-Baath University (5 years program)*  
Homs, Syria
  - Thesis title: **Sign Language Recognition** [\[code\]](#)

## EXPERIENCE

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- **Research Assistant** Dec 2020 – Present  
*Graz University of Technology*  
Graz, Austria
  - **Publishing research** in data science and machine learning venues.
  - **Advising** master's and bachelor's projects/theses.
  - **Holding a lecture** on graph machine learning at KDDM2 course [\[link\]](#).
  - **Supervising projects** of KDDM2 [\[link\]](#) and NLP [\[link\]](#) courses through the Data Team at TU Graz [\[link\]](#).
- **Data Science Researcher** May 2019 – Present  
*Know Center GmbH*  
Graz, Austria
  - **Natural language processing**. Implemented an **information extraction** solution with **weakly supervised learning**.
  - Devising a **text-aware knowledge graph completion** method. Leveraging BERT's context-awareness via neighborhood aggregation.
- **Software Engineer** Nov 2017 – May 2019  
*SSI Schäfer Software Solutions GmbH*  
Graz, Austria
  - Implementing **communication protocols** within an automated logistic system.
  - Defining and detecting **system deadlocks** and implementing test units for corner cases.
- **Graduate Teaching Assistant** Mar 2017 – Jul 2017  
*Al-Baath University*  
Homs, Syria
  - Holding labs for **Algorithms and Data Structures** and **Data Mining**.

## PUBLICATIONS

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1. **Hussain Hussain**, Tomislav Duricic, Elisabeth Lex, Denis Helic, Roman Kern  
**The interplay between communities and homophily in semi-supervised classification using graph neural networks**, *Applied Network Science* 6, 80 (2021). [\[paper\]](#) [\[code\]](#)
2. **Hussain Hussain**, Tomislav Duricic, Elisabeth Lex, Denis Helic, Markus Strohmaier, Roman Kern  
**Structack: Structure-based Adversarial Attacks on Graph Neural Networks**, *Proceedings of the 32st ACM Conference on Hypertext and Social Media*. 2021. [\[paper\]](#) [\[code\]](#)
3. **Hussain Hussain**, Tomislav Duricic, Elisabeth Lex, Roman Kern, Denis Helic  
**On the Impact of Communities on Semi-supervised Classification Using Graph Neural Networks** - *International Conference on Complex Networks and Their Applications 2020*, 15-26. [\[paper\]](#) [\[code\]](#)

4. Mario Lovrić, Tomislav Duricic, Han TN Tran, **Hussain Hussain**, Emanuel Lacić, Morten A Rasmussen, Roman Kern **Should We Embed in Chemistry? A Comparison of Unsupervised Transfer Learning with PCA, UMAP, and VAE on Molecular Fingerprints**, *Pharmaceuticals* 14 (8), 758. [\[paper\]](#)
5. Xinglan Liu, **Hussain Hussain**, Houssam Razouk, Roman Kern **Effective Use of BERT in Graph Embeddings for Sparse Knowledge Graph Completion**, *ACM/SIGAPP 2022* 790-793
6. Tomislav Duricic, **Hussain Hussain**, Emanuel Lacic, Dominik Kowald, Denis Helic, Elisabeth Lex **Empirical Comparison of Graph Embeddings for Trust-Based Collaborative Filtering** - *International Symposium on Methodologies for Intelligent Systems 2020*, 181-191. [\[paper\]](#)

## TECHNICAL SKILLS

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- **Languages.** Python, Java, C++.
- **Tools/Frameworks.** Tensorflow, Pytorch, NetworkX, Pytorch Geometric, SpaCy.

## ACHIEVEMENTS AND AWARDS

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- Catalyst Coding Contest: 1st place in Graz (**top 1% worldwide**). Nov 2019
- Kaggle iWildCam 2019 challenge (**ranked top 7%**): classifying trap photos of wild animals. Jun 2019
- ACM-ICPC (programming contest) **world finalist** and **regional medalist** [\[Full ICPC record\]](#). 2013-2018
- Catalyst Coding Contest: 2nd place in Graz (**top 5% worldwide**). Apr 2018
- **First Graduate Award** at Al-Baath University, Faculty of Information Technology. Dec 2016  
*Awarded to the graduate with the highest total GPA. Ranked 1/ ~ 150.*

## SERVICES

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- Organizing the **TU Graz Data Team** (solving public data challenges, e.g., on Kaggle). May 2019 – Present
  - **Coaching** teams for ACM-ICPC programming contests. 2014 – 2018
  - **Judge** and **problem setter** at several ACM-ICPC contests. 2015 – 2018
  - **Organizing and directing** ACM-ICPC local contests. 2016 – 2017
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