Hakan Tugrul Otal

PhD Student and Research Assistant
University at Albany SUNY, New York, United States
hakan.otal@outlook.com — +1 (518) 608-9563 — linkedin.com/in/hakan-tugrul-otal
hakanotal.github.io — github.com/hakanotal — huggingface.co/hotal

PhD student and Research Assistant with expertise in AI, Graph Neural Networks, and Cybersecurity, currently advancing research at the University at Albany. Skilled in designing AI-driven applications including recent LLMs, developing backend services, and deploying cloud infrastructures, with a robust background in both academic and industry projects.

RESEARCH INTERESTS

Artifical Intelligence, Machine Learning, Graph Theory, Graph Neural Networks, Large Language Models, Computer Networks, Cybersecurity, Deep Learning, Data Science

EDUCATION

University at Albany, SUNY, New York, United States   08-2023 — Present
Ph.D. in Information Science
Data Analytics (Major) - Cybersecurity (Minor)

Istanbul Technical University, Istanbul, Turkey   09-2018 — 06-2023
B.S. in Computer Science   GPA: 3.5/4.0

EXPERIENCE

University at Albany, SUNY   NY, USA
Research Assistant   08-2023 — Present

- Research Assistant at "AI in Complex Systems Lab" under the guidance of Dr. M. Abdullah Canbaz

Parieta AI
Software Engineer   01-2023 — 08-2023

- Designed and developed user interface (UI) of the web application.
- Created and connected Nest.js backend services and MongoDB databases.
- Generated AI pipelines and integrated to the application.
- Setup AWS and Docker container infrastructures to manage the projects.

Deka Technology
Software Engineer   07-2022 — 12-2022

- Developed new API endpoints for many applications of AnadoluEfes.
- Connected SAP services to backend services through customized integration layer.
- Worked with 100+ microservices and used technologies like Jenkins, Openshift, Elastic, Redis, Quarkus, Apache Camel and Keycloak to manage them.

PoiLabs
Software Engineer Intern   09-2021 — 10-2021

- Developed backend services of an mobile application for visually impaired people.
- Tested and restructered an application's mobile API with more dynamic and efficient ways.
- Used Bitbucket as VCS and observed how to work with many people on the same project effectively.

SKILLS

- **Programming:** Python, C/C++, Javascript/Typescript
- **ML Frameworks:** Pytorch, Tensorflow, Sklearn
- **Graph Tools:** Neo4j, Gephi, Networkx, PyG
- **Data Visualization and Manipulation:** Matplotlib, Seaborn, Numpy, Pandas
- **Database Systems:** MongoDB, PostgreSQL, MySQL
- **MLOps:** Docker, Elasticsearch, Redis, AWS
- **LLM Techs:** Huggingface, Ollama, LMStudio, Unsloth, Llama-Factory

PROJECTS & PUBLICATIONS

[1] Hao Jian Huang, Bekzod Iskandarov, Mizanur Rahman, **Otal, Hakan T**, and M Abdullah Canbaz. **Federated Learning in Adversarial Environments: Testbed Design and Poisoning Resilience in Cybersecurity**. *arXiv preprint arXiv:2409.09794*, 2024.

[2] **Otal, Hakan T** and M Abdullah Canbaz. **AI-Powered Crisis Response: Streamlining Emergency Management with LLMs**. In *2024 IEEE World Forum on Public Safety Technology (WFPST)*, pages 104–107. IEEE, 2024.

[3] **Otal, Hakan T** and M Abdullah Canbaz. **LLM Honeypot: Leveraging Large Language Models as Advanced Interactive Honeypot Systems**. In *2024 IEEE Conference on Communications and Network Security (CNS)*, pages 1–6. IEEE, 2024.

[4] **Otal, Hakan T**, Stephen V Faraone, and M Abdullah Canbaz. **A New Perspective on ADHD Research: Knowledge Graph Construction with LLMs and Network Based Insights**. *arXiv preprint arXiv:2409.12853*, 2024.

[5] **Otal, Hakan T**, Eric Stern, and M Abdullah Canbaz. **LLM-Assisted Crisis Management: Building Advanced LLM Platforms for Effective Emergency Response and Public Collaboration**. In *2024 IEEE Conference on Artificial Intelligence (CAI)*, pages 851–859. IEEE, 2024.

[6] **Otal, Hakan T**, Abdulhamit Subasi, Furkan Kurt, M Abdullah Canbaz, and Yasin Uzun. **Analysis of Gene Regulatory Networks from Gene Expression Using Graph Neural Networks**. *arXiv preprint arXiv:2409.13664*, 2024.

[7] **Otal, Hakan T**, Elyse Zavar, Sherri B Binder, Alex Greer, and M Abdullah Canbaz. **Harnessing Deep Learning and Satellite Imagery for Post-Buyout Land Cover Mapping**. In *2024 IEEE Conference on Artificial Intelligence (CAI)*, pages 665–671. IEEE, 2024.

- B.S. Grad. Project : **Distributed Network Load Generation Software**   2023
- B.S. Lab Project: **Trust Based Data Storage for E-Health Systems in IoT**   2021
- ◇ Please check out my Github profile for my other projects.

SERVICES

IEEE	09-2023 — Present
Student Member	
IEEE CIS	03-2024 — Present
Computational Intelligence Society Member	
ACM	10-2024 — Present
Student Member	

University at Albany, SUNY

Supervisor of Undergraduate Interns at UAlbany Summer Research Program (UASRP)	Summer 2024
Teaching Assistant for 'CINF135: Concepts of AI'	Fall 2024, Spring 2024

AWARDS

IEEE Computational Intelligence Society
Student Travel Grant for IEEE CAI 2024   2024
IEEE Communications Society
Student Travel Grant for IEEE CNS 2024   2024
Student Travel Grant for IEEE CNS 2023   2023

TPC - Reviewer
Conference on Computational Linguistics (COLING)   2025
Information Security Journal: A Global Perspective   2024
IEEE Conference on Communications and Network Security (CNS)   2024
IEEE Conference on Local Computer Networks (LCN)   2024
IEEE International Conference on Computer Communications (INFOCOM)   2024
Complex Networks and their Applications (CNA)   2023, 2024

TAKEN COURSES

PhD's Courses

- Quantitative Methods
- Statistics with R
- Advanced Python
- Computer Networks
- Applied Machine Learning
- Computer Network Security
- Database Systems

Additional Courses

- Deep Learning for Computer Vision, University of Colorado Boulder, 02-2022

Bachelor's Courses

- Analysis of Algorithms I & II
- Artificial Intelligence
- Computer Vision
- Deep Learning
- Computer Security
- Computer Communication Systems

REFERENCES

Dr. M Abdullah Canbaz
Assistant Professor
Department of Information Sciences and Technology
University at Albany SUNY, NY, USA
E-mail: mcanbaz@albany.edu
Scholar Profile: albany.edu/cehc/faculty/m-abdullah-canbaz

Dr. Tolga Ovatman
Associate Professor
Faculty of Computer and Informatics Engineering
Istanbul Technical University, Istanbul, Turkey
E-mail: ovatman@itu.edu.tr
Scholar Profile: akademi.itu.edu.tr/en/ovatman/