

WOOJOO NA

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EDUCATION

Tufts University

Sep. 2021 - Jan. 2024

MS in Computer Science

· Master's Thesis Advisor : Abiy Tasissa

· Master's Thesis : Novel Ensemble learning method with applications in Weakly Supervised Learning

[2019-2021] : Mandatory military service in the Republic of Korea Army

University of Oxford

Oct. 2016 - July 2019

B.A. (Hons) in Mathematics

RESEARCH EXPERIENCE

Data Intensive Studies Center, Tufts University

Sep. 2021 - Present

Graduate Researcher, Advisor : Professor Abiy Tasissa

- Independently, developed a novel ensemble learning algorithm. Showed its applicability in weak supervision on empirical data, which proved that when applied to weak supervision, my algorithm is the state of art, outperforming all existing methods by a large margin. <https://arxiv.org/abs/2307.04870>

University of Oxford, Mathematical Institute

July 2019 - Dec. 2019

Undergraduate Researcher, Advisor : Professor Christophe Petit

- Developed a trapdoor attack against parameters suggested at NutMiC2019 conference on Cayley hash functions

- Presented at the 17th IMA International Conference on Cryptography and Coding <https://malb.io/imacc2019/>

University of Oxford, Department of Computer Science

July 2019 - Dec. 2019

Undergraduate Researcher, Advisor : Professor Thomas Lukasiewicz

- Worked on conceptual space of transformer encoder, studying the similarities between NLP architectures and the human brain

University of Oxford, Mathematical Institute

June 2018 - Oct. 2018

Undergraduate Researcher, Advisor : Dr. Andrey Kormilitzin

- Competed in the n2c2 challenge on Adverse Drug Events and Medication Extraction in EHRs

- Exploited CNN architecture and a character level word embedding model to demonstrate a robust approach to concept extraction and relation extraction.

University of Oxford, Department of Computer Science

June 2018 - Oct. 2018

Undergraduate Researcher, Advisor : Professor Thomas Lukasiewicz

- Worked on knowledge graph completion for ontology reasoning

PUBLICATIONS

“Onion Universe Algorithm: Applications in Weakly Supervised Learning”, Woojoo Na (Sole Author)

<https://arxiv.org/abs/2307.04870>

TALKS & PRESENTATIONS

“P2-equivariant Convolutional Networks on MNIST dataset”

May, 2022

Machine Learning Course Presentation, Tufts University

“Bounding worst case errors of Weak Supervision Algorithms”

April, 2022

Tufts University Mathematics Graduate Seminar

“Fake news detection and its impact on financial markets”

November, 2021

2021 Republic of Korean Army Start-up competition

“Security of Cayley hash functions”

January, 2020

Invited speaker at Ewha Womens University, Cryptography and Mathematics Seminar

“Trapdoor attack on Cayley hash function parameters proposed at NutMic 2019 conference.” *December, 2019*
17th IMA International Conference on Cryptography and Coding <https://malb.io/imacc2019/>

“A deep learning approach to concepts extraction from medical texts.” *October, 2018*
Poster session at the University of Oxford, Mathematical Institute

AWARD & SCHOLARSHIPS

- '22-'23 Tuft University Linda M. Abriola Graduate Fellowship (\$ 5,000)
- '21-'22 Tuft University Linda M. Abriola Graduate Fellowship (\$ 5,000)
- LMH Academic Development Fund, Undergraduate summer research (£500)

WORK EXPERIENCE

Republic of Korea Army, 2nd Artillery Brigade *Feb. 2020 - Aug. 2021*
Sergeant, Fire Direction Operator

- Computed solutions to fire missions and relayed the resultant commands to cannons
- Awarded multiple awards from the brigadier general of my brigade for excellence, selected / trained to participate in the 21-1 CCPT(Combined Command Post Training) to facilitate work between the US Army and Korean Army

Utpal Shanghvi Global School *July 2017 - Aug. 2017*
Project Intern

- Worked on economic sustainability and general health of villagers in Wada, Maharashtra, India
- Initiated multiple long term projects, including water purification, flower ornament sales aimed at religious ceremonies. Helped villagers borrow 20 acres of unused farmland and farming resources free of charge.

LEADERSHIP AND SERVICES

Oxford Invariants (Oxford Mathematics Society) *April 2018 - April 2019*
Treasurer

Oxford Energy Society *April 2018 - April 2019*
Events Officer

Oxford Mathematical Institute *June 2018 - Oct. 2018*
Mentor (Problem Solving Matters program)

St.Nicholas Primary School, (Oxford, UK) *Oct.2016 - April 2018*
Volunteer Teacher

Dun-nae Primary School, (Hoengsung, Korea) *Aug.2013 - Dec.2015*
After school Mathematics & Science Volunteer Teacher