

OANA IGNAT

Passionate about applying science to help create a better world

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Ann Arbor, MI, USA



ACADEMIC WORK

Postdoc Computer Science

University of Michigan, Ann Arbor, USA

02/2023 - Ongoing

- Research on vision& language (VL), focus on **VL for social good/ VL4all**, building demographically and geo-diverse models
- Member Language and Information Technologies (LIT) Lab
- Mentor for Masters and Ph.D. students
- CO-PI Global Health Equity Grant
- Co-organizer of the ACL Year Round Mentorship
- Organizer of the Confidence Workshops

EDUCATION

Ph.D. Computer Science

University of Michigan, Ann Arbor, USA

09/2017 - 08/2022

- Research on vision& language (VL), with focus on **human action understanding** through social media vlogs
- Advised by Rada Mihalcea
- Member Language and Information Technologies (LIT) Lab
- Member Center for Research on Learning and Teaching in Engineering (CRLT-ENGIN)
- Primary Teaching Instructor
- Mentor for High-school, Undergrad, and Masters students
- Organizer of the NLP Reading Group

B.S. Computer Science

Babes-Bolyai University, Cluj Napoca, Romania

10/2013 - 07/2016

- Collaborated with Robert-Bosch for **my undergraduate thesis**, which won multiple prizes and was successfully applied in the real world
- Won the **Best Thesis award in Artificial Intelligence** for the entire class of 2016 undergraduate and graduate students

AWARDS



Best Poster award in Eastern European Machine Learning summer school (EEML), July 6th, 2019



2017-2018 Fulbright Student Award Finalist



Best Thesis award in Artificial Intelligence for the entire class of 2016 graduates at the "Babes-Bolyai" University, Cluj-Napoca. Awarded by the Romanian Institute of Science and Technology, July 1, 2016



"Scientific Communication Sessions for Students" Cluj-Napoca, June 16, 2016 – Second place



2016 Jane Street "Women in STEM" Finalist



Over the years, I took part in over 60 Mathematics competitions, such as:

- National competition in Mathematics "Euclid" 2013 – 1st prize
- National Olympiad in Mathematics 2012
- Regional Mathematics Olympiad 2012 – 1st place
- Regional Mathematics Olympiad 2011 – 2nd place
- National competition in Mathematics "Euclid" 2011 – 2nd prize
- Regional Mathematics Olympiad 2010 – mention
- Regional Mathematics Olympiad 2009 – 2nd place

PUBLICATIONS

Scalable Performance Analysis for Vision-Language Models

Annual Meeting of the Association for Computational Linguistics (*SEM 2023)

Santiago Castro, Oana Ignat*, Rada Mihalcea*

📅 2/2022 🔗 <https://arxiv.org/pdf/2305.18786.pdf>

Built a scalable framework for measuring the limitations of vision-language models.

Fill-in-the-Blank: A Challenging Video Understanding Evaluation Framework

Annual Meeting of the Association for Computational Linguistics (ACL 2022)

Santiago Castro, Ruoyao Wang, Pingxuan Huang, Ian Stewart, Oana Ignat, Nan Liu, Jonathan C. Stroud, Rada Mihalcea*

📅 2/2022 🔗 <https://arxiv.org/pdf/2104.04182.pdf>

Analyzed a novel video understanding evaluation benchmark.

OCR Improves Machine Translation for Low-Resource Languages

Annual Meeting of the Association for Computational Linguistics (ACL 2022)

Oana Ignat, Jean Maillard, Vishrav Chaudhary, Francisco Guzmán*

📅 2/2022 🔗 <https://arxiv.org/pdf/2202.13274.pdf>

Built a novel OCR benchmark consisting of real and synthetic data enriched with noise, for 60 low-resource languages in low-resource scripts and showed that OCR-ed data in back-translation improves MT performance.

WhyAct: Identifying Action Reasons in Lifestyle Vlogs

The 2021 Conference on Empirical Methods in Natural Language Processing (EMNLP 2021)

Oana Ignat, Santiago Castro, Hanwen Miao, Weiji Li*

📅 11/2021 🔗 <https://arxiv.org/pdf/2109.02747.pdf>

Built a dataset and a multimodal model that leverages visual and textual information to automatically infer the reasons for an action presented in the video.

When did it happen? Duration-informed Temporal Localization of Narrated Actions in Vlogs

ACM Transactions on Multimedia Computing, Communications, and Applications (TOMM 2021)

Oana Ignat, Santiago Castro, Yuhang Zhou, Jiajun Bao, Dandan Shan, Rada Mihalcea*

📅 10/2021 🔗 <https://arxiv.org/pdf/2202.00813.pdf>

TEACHING ACTIVITIES

Primary Instructor

Discover CS (EECS 198)

📅 09/2021 - 12/2021

Taught an intro to CS course primarily designed for **underrepresented minorities** in CS.

Engineering Teaching Consultant

Center for Research on Learning and Teaching in Engineering (CRLT-Engin)

📅 09/2020 - 05/2021

Helped other GSIs/IAs to *improve their teaching* through one-on-one consultations where we discussed challenges they faced during teaching. I also collected feedback from students of the GSIs/IAs and discussed it with the student instructor.

Graduate Student Instructor

Data Structures and Algorithms (EECS 281)

📅 09/2020 - 12/2020

Data Mining (EECS 476)

📅 01/2020 - 05/2020

Teach AI for Social Good

AI4ALL

📅 07/2019

Introduced **underrepresented minority high school students** to AI by teaching them how to code in Python and implement an NLP project related to **social good**: work with HappyDB dataset to predict what makes people happy.

Teach Math and English

Hometown library

📅 2013

Taught beginner and intermediate-level Math and English to high school students.

Built a human-annotated dataset and an effective multimodal model to localize the narrated actions based on their expected duration.

Detecting Inspiring Content on Social Media

9th International Conference on Affective Computing Intelligent Interaction (ACII 2021)

Oana Ignat*, Y-Lan Boureau, Jane A. Yu, Alon Halevy

📅 9/2021 🔗 <https://arxiv.org/pdf/2109.02734.pdf>

Built a human-annotated dataset and an NLP model to automatically detect inspiring content from social media data, Reddit and Facebook.

Identifying Visible Actions in Lifestyle Vlogs

Annual Meeting of the Association for Computational Linguistics (ACL 2019)

Oana Ignat*, Laura Burdick, Jia Deng, Rada Mihalcea

📅 07/2019 🔗 <https://arxiv.org/pdf/1906.04236.pdf>

Built a human-annotated dataset and multi-modal models for detecting human activities from transcribed YouTube videos.

Disparity image segmentation for free-space detection

IEEE 12th International Conference on Intelligent Computer Communication and Processing (ICCP)

Oana Ignat*, Cosmin Lazar

📅 08/2016 🔗 <https://ieeexplore.ieee.org/document/7737150/>

Built a novel model for detecting the road from depth images, to enable autonomous driving.

PAPERS UNDER SUBMISSION

Human Action Co-occurrence in Lifestyle Vlogs using Graph Link Prediction

Oana Ignat*, Santiago Castro, Weiji Li, Rada Mihalcea

📅 5/2023 🔗 <https://anonymous-for-review>

A Ph.D. Student's Perspective on Research in NLP in the Era of Very Large Language Models

Oana Ignat*, Zhijing Jin*, Artem Abzaliev, Laura Biester, Santiago Castro, Naihao Deng, Xinyi Gao, Aylin Gunal, Jacky He, Ashkan Kazemi, Muhammad Khalifa, Namho Koh, Andrew Lee, Siyang Liu, Do June Min, Shinka Mori, Joan Nwatu, Veronica Perez-Rosas, Siqi Shen, Zekun Wang, Winston Wu, Rada Mihalcea

📅 6/2023 🔗 <https://arxiv.org/pdf/2305.12544.pdf>

GRANT PROPOSALS

Co-PI

Global Health Equity

📅 3/2023 - Ongoing

🔗 <https://globalhealthequity.umich.edu/impact-accelerator-grants>
Increasing Access to Healthcare Information with Multilingual Question Answering, in collaboration with University professors and medical staff from Nigeria.

INVITED TALKS

Oakland University

📅 3/2023

🔗 <https://ou-nlp.github.io/>
Presented my research on human action understanding at the NLP lab meeting at Oakland University, invited by Prof. Steve Wilson.

NLP Meetup Group in Ann Arbor

📅 3/2019

🔗 www.meetup.com/Ann-Arbor-Detroit-NLPers-A2D-NLP
Presented my research on human action understanding at the NLP Meetup in Ann Arbor (588 members).

SERVICE AND VOLUNTEERING

Mentor

University of Michigan

📅 09/2020 - Ongoing

Mentored and published research papers with Masters (Aylin Gunal, Shinka Mori, Longju Bai, Weiji Li, Hanwen Miao, Jiajun Bao, Yuhang Zhou) and Ph.D. students (Joan Nwatu).

Michigan Islamic Academy's Senior Project

📅 09/2019 - 11/2019

Biweekly meetings with a senior student to guide her through her final NLP project, a project related to diversity and mental health.

Bridging the Digital Divide: Performance Variation across Socio-Economic Factors in Vision-Language Models

Joan Nwatu*, **Oana Ignat**, Rada Mihalcea

📅 5/2023 🔗 <https://anonymous-for-review>

Towards Algorithmic Fidelity: Mental Health Representation across Demographics in LLM-generated vs. Human-generated Data

Shinka Mori*, **Oana Ignat**, Andrew Lee, Rada Mihalcea

📅 5/2023 🔗 <https://anonymous-for-review>

Augment the Pairs: Semantics-Preserving Image-Caption Pair Augmentation for Grounding-Based Vision and Language Models

Jingru Yi*, Burak Uz kent, **Oana Ignat**, Linda Liu

📅 5/2023 🔗 <https://anonymous-for-review>

INDUSTRY EXPERIENCE

Research Intern

Amazon

📅 09/2022 - 12/2022 📍 Seattle

- Mentored by Jingru Yu and Burak Uz kent
- Significantly Improved image-phrase grounding model performance using novel data augmentation technique.

Facebook (FAIR)

📅 05/2021 - 08/2021 📍 Remote

- Mentored by Paco Guzman
- Analyzed OCR errors for low-resource languages and their impact on MT performance.

Facebook (FAIR)

📅 05/2020 - 08/2020 📍 Remote

- Mentored by Alon Halevy and Y-Lan Boureau
- Detected Inspiring Content on Social Media (Reddit and Facebook posts).

Image Processing Engineer

Telenav Software

📅 08/2016 - 08/2017 📍 Cluj Napoca, Romania

- 3D reconstruction of scenes using structure from motion.

Intern Image Processing Engineer

Robert-Bosch SRL

📅 07/2015 - 08/2016 📍 Cluj Napoca, Romania

- Novel road detection algorithm using a stereo-camera.

Co-organizer

ACL Year Round Mentorship

📅 05/2023 - Ongoing

🔗 <https://mentorship.aclweb.org/>

Co-moderator for the panel sessions, and in charge of the social media communications.

University NLP@Michigan Days

📅 04/2023

🔗 <https://ai.engin.umich.edu/event/nlp-michigan-day>

Co-Chair of the NLP@Michigan Symposium, 2023 (100 attendees).

Reviewer

ACL Rolling Review

📅 12/2021 - Ongoing

Review research papers on multimodal (NLP and Computer Vision).

Eastern European Machine Learning Summer School

📅 04/2023

🔗 <https://www.eeml.eu>

Reviewed research applications from 20 students applying to participate in the Eastern European Machine Learning Summer School (EEML).

Organizer

University Confidence Workshops

📅 05/2023 - Ongoing

Organize a bi-weekly series of activities inspired by Improv and Toastmasters, on reducing perfectionism, tackling impostor syndrome, and improving speaking skills (10-15 Ph.D. and Masters student attendees/ week, mainly from CS minority groups).

University NLP Reading Group

📅 08/2019 - 08/2022

🔗 lit.eecs.umich.edu/reading_group.html

Weekly **NLP reading groups** for the University of Michigan students from the CSE, EECS and School of Information.

CONFERENCES ATTENDED

- Annual Meeting of the Association for Computational Linguistics (ACL)
- Empirical Methods in Natural Language Processing
- North American Chapter of the Association for Computational Linguistics
- International Conference on Computational Linguistics
- Eastern European Machine Learning Summer School
- Midwest Speech and Language Days

UNIVERSITY TEACHING WORKSHOPS

- Designing and Facilitating Group Work in Remote Courses
- It's Time for Action: Generating an Active Learning Plan
- The Science of Learning
- How Stereotype Threat, Impostor Syndrome, and Growth Mindset Affect Student Learning
- Writing and Grading Multiple Choice Exams: An Online Workshop

UNIVERSITY GRADUATE COURSES

- ELI 621: Dissertation and Publication Writing
- EECS 692: Advanced Artificial Intelligence
- EECS 592: Foundations of Artificial Intelligence
- EECS 551: Matrix Methods for Signal Processing
- EECS 595: Natural Language Processing
- EECS 542: Advanced Topics in Computer Vision

PROGRAMMING SKILLS

Python/ SciPy/ Numpy

Keras/ Pytorch

LaTeX/ Overleaf

Matlab/ Octave

MySQL/ Presto

HTML

CSS

JavaScript

C++

OpenCV

Hadoop

Java

C#

LISP

Prolog

Student Volunteer at Conference
Annual Conference of the North American Chapter of the Association for Computational Linguistics (NAACL)
📅 06/2019

INDEPENDENT COURSEWORK

- Good with Words: Speaking and Presenting
University of Michigan
Patrick Barry
📅 2023
- Data Science Ethics
University of Michigan
H.V. Jagadish
📅 2021
- The Science of Well-Being
Yale University
Laurie Santos
📅 2020

- Machine Learning
Stanford University
Andrew Ng
📅 2017
- Image and Video Processing
Duke University
Guillermo Sapiro
📅 2016

LANGUAGES

Romanian
Native

English
Fluent

French
Beginner

Spanish
Beginner

German
Beginner