

Ismini Lourentzou

Assistant Professor, Computer Science

Perception + LAnGuage (PLAN) Lab @ VT

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🌐 [isminoula.github.io](https://github.com/isminoula)

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Research Interests

ML/Computer Vision/NLP: self-supervision and robustness, multi-modal ML, embodied AI, video understanding.

Education

- 2013-2019 **Ph.D. Computer Science**, *University of Illinois at Urbana - Champaign (UIUC)*, Urbana, Illinois.
- 2010-2013 **B.S. Computer Science**, *Athens University of Economics and Business (AUEB)*, Athens, Greece.
- 2003-2009 **B.S. Business Administration**, *University of West Attica*, Athens, Greece.

Work Experience

- 2021-present **Assistant Professor**, *Computer Science, Virginia Tech*, Blacksburg, VA.
- 2022-present **Affiliate Faculty**, *National Security Institute, Virginia Tech*.
- 2021-present **Faculty Member**, *Sanghani Center for Artificial Intelligence and Data Analytics, Virginia Tech*.
- 2021-present **Affiliate Faculty**, *Center for Advanced Innovation in Agriculture (CAIA), Virginia Tech*.
- 2019-2020 **Research Scientist**, *IBM Research, Intelligence Augmentation Team*, San Jose, CA.
- 2018, 2017 **Summer Research Intern**, *IBM Research, Intelligence Augmentation Team*, San Jose, CA.
- 2015 **Summer Research Intern**, *Microsoft Research, Machine Teaching group*, Seattle, WA.

Selected Honors and Awards

- Dec 2020 **Outstanding Reviewer**, Empirical Methods in Natural Language Processing (EMNLP) 2020
- Dec 2019 **IBM Invention Plateau Award**, IBM Research
- Oct 2019 **Rising Stars in EECS 2019**
- Fall 2017 **Outstanding Teaching Award**, Computer Science | UIUC

Selected Publications & Patents

For a complete list of publications and patents, please visit [Google Scholar](#). ‡ denotes (co-)supervised student.

- [1] Ying Shen[‡] and Ismini Lourentzou. Learning by Asking for Embodied Navigation and Task Completion. *In preparation*, 2022.
- [2] Muntasir Wahed[‡], Afrina Tabassum[‡], and Ismini Lourentzou. SwARo: Adversarial Contrastive Learning by Permuting Cluster Assignments. *arXiv preprint arXiv:2204.10314*, 2022.
- [3] Afrina Tabassum[‡], Muntasir Wahed[‡], Hoda Eldardiry, and Ismini Lourentzou. UnReMix: Mixing Hard Negative Sampling Strategies for Contrastive Representation Learning. *arXiv preprint arXiv:2206.01197*, 2022.
- [4] Ismini Lourentzou, Daniel Gruhl, Steven R Welch, Chad Eric DeLuca, Alfredo Alba, Linda Ha Kato, Petar Ristoski, and Anna Lisa Gentile. Identifying similarity matrix for derived perceptions, March 31 2022. US Patent App. 17/038,126.
- [5] Amarachi Mbakwe[‡], Gaurang Karwande[‡], Joy T. Wu, Leo Antony Celi, Mehdi Moradi, and Ismini Lourentzou. CheXRelNet: An Anatomy-Aware Model for Tracking Longitudinal Relationships between Chest X-Rays. In *Proceedings of the 25th International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI)*, 2022.
- [6] Arkin R Dharawat[‡], Ismini Lourentzou, Alex Morales, and Chengxiang Zhai. Drink Bleach or Do What Now? Covid-HeRA: A Dataset for Risk-informed Health Decision Making in the Presence of COVID19 Misinformation. In *Proceedings of the 16th International AAAI Conference on Web and Social Media (ICWSM) Datasets Track*, 2022.
- [7] Joy T Wu, Nkechinyere Nneka Agu, Ismini Lourentzou, Arjun Sharma, Joseph Alexander Paguio, Jasper Seth Yao, Edward Christopher Dee, William G Mitchell, Satyananda Kashyap, et al. Chest ImaGenome Dataset for Clinical Reasoning. In *Proceedings of the 39th Neural Information Processing (NeurIPS) Datasets and Benchmarks Track (oral)*, 2021.
- [8] Safa Messaoud, Ismini Lourentzou, Assma Boughoula, Mona Zehni, Zhizhen Zhao, Alexander Schwing, and ChengXiang Zhai. DeepQAMVS: Query-Aware Hierarchical Pointer Networks for Multi-Video Summarization. In *Proceedings of the 44th International ACM SIGIR Conference on Research and Development in Information Retrieval*, 2021.
- [9] Alexandros Karargyris, Satyananda Kashyap, Ismini Lourentzou, Joy Wu, Arjun Sharma, Matthew Tong, Shafiq Abedin, David Beymer, Vandana Mukherjee, Elizabeth A Krupinski, et al. Creation and Validation of a Chest X-Ray Dataset with Eye-tracking and Report Dictation for AI Tool Development. *Nature Scientific Data*, 2021.
- [10] Muntasir Wahed[‡], Daniel Gruhl, Alfredo Alba, Anna Lisa Gentile, Petar Ristoski, Chad Deluca, Steve Welch, and Ismini Lourentzou. SAUCE: Truncated Sparse Document Signature Bit-Vectors for Fast Web-Scale Corpus Expansion. In *Proceedings of the 30th ACM Conference on Information and Knowledge Management (CIKM)*, 2021.
- [11] Ismini Lourentzou, Kabir Manghnani[‡], and ChengXiang Zhai. Adapting Sequence to Sequence Models for Text Normalization in Social Media. In *Proceedings of the 13th International AAAI Conference on Web and Social Media (ICWSM)*, 2019.

Funding

- 2022-2023 **CCI: High Accuracy Automatic Code Repair**, Award: \$75,000, from Commonwealth Cyber Initiative (CCI) with Co-PI with PI Dr. Danfeng Yao and Co-PI Bimal Viswanath.
- 2022-2026 **NSF EAGER CoFedAI: Cost-sensitive Federated AI for Smart Manufacturing Data-Sharing**, Award: \$300,000, PI with Dr. Ran Jin (Co-PI), Virginia Tech ISE Department.
- 2022-2024 **DARPA KMASS INformation, Context and Expertise Preservation for Task-Oriented Recommendations (INCEPTOR)**, Award: \$1,586,741, Co-PI with collaborators from Systems & Technology Research (STR), Virginia Tech and University of California Santa Barbara.
- 2022-2023 **Virginia Tech**, Award: \$1,500, New Faculty Mentoring Grant.
- 2015-2016 **Microsoft Azure for Research “Multivariate Time Series Analysis for Trend Forecasting”**, Sole-PI, Access to Azure (estimated value: \$20,000).

Selected Teaching Experience

- Fall 2022 **CS5824 Advanced Machine Learning**, *Computer Science* | *Virginia Tech*.
- Fall 2021 **CS5604 Information Retrieval**, *Computer Science* | *Virginia Tech*.
- Spring 2021 **CS6604 Data Challenges in Machine Learning**, *Computer Science* | *Virginia Tech*.
- Fall 2017 **Guest Lecture, CS510 Advanced Topics in Information Retrieval**, *Computer Science* | *UIUC*.
Instructor: Prof. ChengXiang Zhai. Lecture on Introduction to Deep Learning, accompanied by Python coding example. Presentation slides used in courses at University of Idaho, IIT Delhi, Seoul National University, and Saarland University.
- Fall 2016 **Guest Lecture, CS591 Text Mining Seminar**, *Computer Science* | *UIUC*.
Instructor: Prof. ChengXiang Zhai. Lecture on Long Short-Term Memory Neural Networks (LSTMs)

Selected Recent Academic Service

- NSF** Cyber-Physical Systems (CPS) 2021 Panel Reviewer
Future Manufacturing (FM) 2022 Panel Reviewer
- Virginia Tech** Computer Science Tenured-Track Faculty Search Committee 2022 & 2023 (+Diversity Search Advocate)
Data and Information Ph.D. Qualifying Examination Committee Spring 2021 & 2022
- Expo co-Chair** Conference on Neural Information Processing Systems (NeurIPS) 2022
- Organizing Committee** Gaze Meets ML Workshop @NeurIPS 2022
- PhD Consortium Director** ACM Conference on Pervasive Technologies Related to Assistive Environments (PETRA) 2022
- Assoc. Chair** ACM Conference on Pervasive Technologies Related to Assistive Environments (PETRA) 2021
- Session Chair** ACM Conference on Pervasive Technologies Related to Assistive Environments (PETRA) 2021
Conference on Information and Knowledge Management (CIKM) 2020 Applied Track
International AAAI Conference on Web and Social Media (ICWSM) 2019
- Program Committee** AAAI (2021, 2022), AAAI-ICWSM (2019, 2021, 2022), AACL-IJCNLP (2020, 2022), NAACL-HLT (2021), ACL-IJCNLP (2021), ACL (2020), EACL (2021), EMNLP (2020, 2021, 2022), CIKM Applied (2020, 2021, 2022), TheWebConf (2021, 2022), WebSci (2021, 2022), etc.
ICLR 2022 Workshop on Geometrical and Topological Representation Learning
NeurIPS 2020 Topological Data Analysis and Beyond (TDA) Workshop
Data-Efficient Machine Learning (DeMaL) Workshop at TheWebConf (DeMaL@WebConf) 2021
DeMaL at the Knowledge Discovery and Data Mining Conference (DeMaL@KDD) 2021
- Reviewer** NeurIPS (2022), NeurIPS Datasets and Benchmarks (2022), ICLR (2022), ICML (2021, 2022)
Association for Computational Linguistics (ACL) Rolling Reviewer (2021, 2020)
- Journal Reviewer** Computer Speech & Language
ACM Transactions on Knowledge Discovery from Data (TKDD)
ACM Transactions on Intelligent Systems and Technology (TIST)
IEEE Transactions on Automation Science and Engineering (ASE)

Selected Media Coverage & Outreach

- **ACM PETRA 2022 Keynote:** Supervision Signals for Machine Learning in Healthcare and Beyond.
- **Women in STEM (W-STEM) Mentoring Seminar** Presentation Slides
- **Lourentzou awarded NSF grant to develop infrastructure for more effective AI in U.S. manufacturing industry** Shanghani
- **New journal article examines vaccination misinformation on social media.** EurekAlert News Release, October 2021
- **CXR Dataset with Eye-Tracking and Report Dictation.** Springer Nature Behind The Paper Blog, March 2021
- **National Science Foundation Where Discoveries Begin** Research News Rescued History NSF News, February 2016.