Anurag Acharya, PhD
Research Scientist

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RESEARCH INTERESTS

artificial intelligence, natural language processing, computational linguistics, commonsense reasoning, ai bias, ai ethics, large language models

EDUCATION

- **Doctor of Philosophy (PhD) in Computer Science**   2022
  Florida International University, Miami, FL, USA
  - **Major Advisor:** Prof. Mark A. Finlayson; **Dissertation:** Integrating Cultural Knowledge into Artificially Intelligent Systems: Human Experiments and Computational Implementations

- **Masters of Science (MS) in Computer Science**   2021
  Florida International University, Miami, FL, USA

- **Bachelors of Engineering (BE) in Computer Engineering**   2016
  Kathmandu Engineering College, IoE, Tribhuvan University, Kathmandu, Nepal

- **Bachelors of Arts (BA) in English and Political Science**   2015
  Ratna Rajya Campus, Tribhuvan University, Kathmandu, Nepal

RESEARCH / ACADEMIC EXPERIENCE

- **Data Scientist**   October 2022– Present
  Pacific Northwest National Laboratory, Richland, WA
  - Advanced Computing, Mathematics, and Data Division; Physical and Computational Sciences Directorate
    Working on various projects involving narrative detection, large language models, knowledge graphs, scientific foundational models, nuclear nonproliferation, reasoning

- **Adjunct Faculty / Primary Instructor**   Spring 2020, 2021 & 2023
  Florida International University, Miami, FL
  - **Natural Language Processing:** Covered all aspects of the class, including lectures, assignments, exams, among others. 42 students in Spring 2020, 60+ students in Spring 2021 & 2023.

- **Courtesy Postdoctoral Associate**   October 2022– December 2022
  Florida International University, Miami, FL
  - Working on research involving cultural motifs, rituals, and cultural bias in AI

PEER-REVIEWED PUBLICATIONS

- [**Book Chapter (In press)**] Saldanha E., **Acharya A.**, Ocal, M., Glenski M., & Volkova, S. (2022) "Detecting and Summarizing Narratives in the Information Environment: A Case Study of Misinformation and Disinformation Campaigns". *Detecting Online Propaganda and Misinformation.*

- [**Conference Paper**] Yarlott, W. V. H., Ochoa, A., **Acharya, A.**, Bobrow, L., Castro-Estrada, D., Gomez, D., Zheng, J., McDonald, D., Miller, C. & Finlayson, M. A. (2021). "Finding Trolls Under Bridges: Preliminary Work on a Motif Detector". *Advances in Cognitive Systems.* Virtual Conference

- [**Citable Abstract**] Yarlott, W. V. H., Ochoa, A., **Acharya, A.**, Bobrow, L., Castro-Estrada, D., Gomez, D., Zheng, J., McDonald, D., Miller, C. & Finlayson, M. A. (2021). "Motif Frequency and its Relation to Genre". *Literature & Culture and/as Intelligent Systems*. Virtual Workshop
- [**Workshop Paper**] **Acharya, A.**, Talamadupula, K., & Finlayson, M. A. (2021). "Towards an Atlas of Cultural Commonsense for Machine Reasoning." *Workshop on Common Sense Knowledge Graphs (CSKGs), The Thirty-Fifth AAAI Conference on Artificial Intelligence.* Virtual Conference
- [**Conference Paper**] KC, K., Acharya, A., **Acharya, A.**, & Shrestha, S. (2021). "Transfer Learned Mobilenets with shrinking hyperparameters for classifying Covid-19 based on X-ray images". *Advanced Engineering and ICT-Convergence Proceedings. Vol 4, No. 2.* Virtual Conference

PREPRINTS AND RESEARCH WORKS UNDER REVIEW

- **Acharya, A.**, Sharma, S., Cosbey, R.J., Subramanian, M., & Glenski, M. F. "AISLE: Artificial Intelligence from Scientific Literature". *Under review at LREC-COLING 2024.*
- Yarlott, W. V. H., **Acharya, A.**, Castro-Estrada, D., Gomez, D., & Finlayson, M. A. "GOLEM: GOld standard for Learning and Evaluation of Motifs". *Under review at LREC-COLING 2024.*
- Munikoti, S., **Acharya, A.**, Wagle, S., & Horawalavithana, Y. S. "Evaluating the Effectiveness of Retrieval-Augmented Large Language Models in Scientific Document Reasoning". *Under review at a NeurIPS 2023 Workshop.*
- **Acharya, A.**, Munikoti, S., Wagle, S., & Horawalavithana, Y. S. "NuclearQA: A Human-Made Benchmark for Language Models for the Nuclear Domain". *Preprint, expected submission to ACL Rolling Review.*
- Munikoti, S., **Acharya, A.**, Wagle, S., & Horawalavithana, Y. S. "ATLANTIC: Structure-Aware Retrieval-Augmented Language Model for Interdisciplinary Science". *Preprint, expected submission to ACL Rolling Review*
- Wagle, S., Munikoti, S., **Acharya, A.**, & Horawalavithana, Y. S. "Empirical evaluation of Uncertainty Quantification in Retrieval-Augmented Language Models for Science". *Preprint, expected submission to ACL Rolling Review*

TALKS, SEMINARS, AND PRESENTATIONS

- **Panel** — **Acharya, A.** (Lead), Saldanha, E. G., & Horawalavithana, Y. S. "Towards a more ethical and trustworthy AI", Pacific Northwest National Laboratory (PNNL). August 2023. *Organized in absentia due to illness.*
- **Conference Presentation** — **Acharya, A.** Saldanha, E. G. (Presenter) "Detecting and studying narratives in text", Pacific Northwest National Laboratory (PNNL). August 2023.
- **Conference Presentation** — Wagle, S. (Presenter) , Sharma, S., Munikoti, S., **Acharya, A.**, Briseno, D. N., Horawalavithana, Y. S. "Towards Trustworthy Natural Language Reasoning: Uncertainty Estimation in Large Language Models with Human-AI Collaboration", Pacific Northwest National Laboratory (PNNL). August 2023.
- **Conference Presentation** — Sharma, S. (Presenter), **Acharya, A.**, Cosbey, R.J., Subramanian, M., & Glenski, M.F. "CHEMSAI: CHEmistry-focused Multimodal Scalable AI." PNNL. August 2023.
- **Invited Talk** — "Integrating Cultural Knowledge into Artificially Intelligent Systems", Pacific Northwest National Laboratory (PNNL). August 2022
- **Conference Presentation** — **Acharya, A.** (Presenter), Ocal, M., Glenski, M. F., & Saldanha, E. G. "Extracting Narrative Components from Tweets", Research Symposium, PNNL. July 2020
- **Invited Panel** — "What is AI and What is it Good For?", Miami-Dade College, Miami, FL. February 2020
- **Invited Panel** — "The Future of AI", Cognitive Science Society, Florida International University. November 2019

Advisees

- **Caleb Stam,** Undergraduate Research Intern, Jun 2023 – present.
- **Diego Castro,** Undergraduate Research Assistant, Feb 2020 – April 2022
- **Shreeja Dahal,** Undergraduate Research Intern, May – Aug 2021

Social and Volunteering

- **Member** – Nepali Students' Union (NSU) at FIU, 2017 – 2020
- **President** – Ktm Don Bosco Alumni, 2014–2016 (Past: VP (2012–14) & Secretary (2011–12))
- **Organizer** – Autism Awareness Program, 2014
- **Member** – NepaliPolitics, a non-partisan political awareness initiative, 2013
- **Organizer** – A Day Together: Awarness about HIV Positives, 2013
- **Participant** – Social Media for Learning, 2013

Other Professional Activities (Service)

- **Judge** – "FIU Undergraduate Research Conference 2022". Florida International University. April 2022.
- **Session Chair** – "Ninth Advances in Cognitive Systems (ACS) Conference", Virtual Conference. November 2021.
- **Member, Organizing Committee** – "ComSciCon Miami 2021 – The Communicating Science workshop for graduate students", Miami, FL. October 2021.
- **Reviewer** – IEEE Transactions on Artificial Intelligence, Humanities & Social Sciences Communications Journal, Conference on Neural Information Processing Systems
- **Professional Member** – Association for the Advancement of Artificial Intelligence (AAAI), Association for Computational Linguistics (ACL), Association for Computing Machinery (ACM)

Non-academic Experience

- **Web Development Instructor** – White Danphe IT Solutions, 2016 – 2017
- **Web Developer / Software Engineer** – Freelance, 2015–2017
- **Project Manager / Technical Team Lead** – Kozzaja Infotech Pvt. Ltd., 2014–2015
- **Sports Columnist** – M&S VMag, 2016–2017
- **Managing Editor** – WicketNepal, 2015–2017
- **Writer / Editor** – Cricketlok, 2013–2015

Languages

- **Nepali** Native Language
- **English** Native Proficiency
- **Hindi** Minimum Professional Proficiency
- **Urdu** Spoken only, Minimum Professional Proficiency
- **French** Elementary Proficiency