Neeti Pokhriyal, PhD
Postdoctoral researcher,
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Research Interests

Data Mining, Applied Machine Learning. I am interested in modelling scenarios characterised by noisy, uncertain and high-dimensional data coming from different sources, sensors, modalities or feature spaces. I am passionate about problems of sustainable human development using knowledge inspired and data-driven computational lens.

Professional Experience

Dartmouth College, NH — Oct 2019 - now
Post Doctoral Researcher, Department of Computer Science

Irving Institute for Energy and Society, Dartmouth College — July 2020 - now
Associate Affiliate

Inter-American Development Bank, DC — Jan 2019 - Dec 2019
Consultant

University at Buffalo, State University of New York, NY — Jan 2014 - August 2019
Graduate Research Assistant, Computer Science and Engineering

Oak Ridge National Laboratory, Oak Ridge, TN — July 2012 - April 2013
Postmaster's Researcher, Computer Science and Mathematics Divison

University of California, Riverside, CA — Sept. 2008 - Dec. 2009
Graduate Research and Teaching Assistant, Computer Science

Tata Consultancy Services, Mumbai, India — Sept. 2005 - Oct.2007
Assistant Systems Engineer, Nortel Technology Laboratory.

Education

University at Buffalo, The State University of New York — August 2013 - August 2019
PhD, Computer Science and Engineering
Dissertation Title: **Learning from Disparate Data: Applications in Biometrics and Sustainability**

University of California, Riverside — April 2008 - Dec. 2009
Masters, Computer Science
Thesis Title: **Nucleosome Landscape Analysis for Novel Gene Discovery Via Machine Learning**

Aligarh Muslim University, India — July 2001 – May 2005
Bachelors in Technology, *with Honors*
Computer Engineering

Funding

1. **Mapping Country-wide Energy Access for the Majority World**
   Awarded by: Irving Institute of Energy and Society, Dartmouth College
   Role: **Principal Investigator**
   Amount: USD 31,000. Timeline: July 2020 - June 2021.

2. **Financial Services for the Poor** (OPP1114791)
   Funded by: Bill and Melinda Gates Foundation
   Role: **Project Lead**, University at Buffalo, to work on poverty mapping using mobile data in Senegal
   Amount: USD 20,000 (100% share). Timeline: June 2015 - Dec 2016.

3. **Multi-dimensional poverty mapping from mobile phone data on the OPAL platform**
   Funded by: Overseas Development Institute (ODI), UK
   Role: **Consultant**
   Amount: USD 15,000 (100% share). Timeline: Feb - August 2019.

Awards

1. **Chih Foundation Research and Publication Award**, May 2019.
   This is a single award of USD 2,500 given each year for doctoral research related to innovation for the betterment of society at University at Buffalo, State University of New York.

2. **Doctoral Consortium Scholarship** fund for AAAI Conference on Artificial Intelligence (AAAI-19), Jan 2019.

3. **Winner - National Statistics Prize & USD 2,000 prize**
   Data for Development (D4D) Challenge, Netmob, MIT, 2015.

4. Finalist, 3 Minute Thesis (3MT), University at Buffalo, 2019

5. **Travel Support** to attend International Conference on Computational Sustainability, Cornell 2016.

6. **Dean's Distinguished Fellowship Award** at University of California, Riverside, 2008.

Selected Publications

Journals

1. **Estimating and Forecasting Income Poverty and Inequality in Haiti Using Satellite Imagery and Mobile Phone Data**,
   N. Pokhriyal, Omar Zambrano, Jennifer Linares, Hernández, Hugo, *Working Paper*, Inter-American Development Bank, 2020.

2. **Learning Discriminative Factorized Subspaces with application to Touchscreen Biometrics**,
   N. Pokhriyal, V. Govindaraju, IEEE Access, 2020.

3. **Combining disparate data sources for improved poverty prediction and mapping**,
   N. Pokhriyal, D. Jacques, Proceedings of the National Academy of Sciences (PNAS), 2017.

4. **Cognitive-Biometric Recognition from Language Usage: A Feasibility Study**,
   N. Pokhriyal, I. Nwogu, V. Govindaraju, IEEE Transactions in Information Forensics, 2016.

5. **Analysis of nucleosome positioning landscapes enables gene discovery in the human malaria parasite Plasmodium falciparum**,
   X. M. Lu, E. M. Bunnik, **N. Pokhriyal**, S. Nasseri, S. Lonardi, K. Le Roch, BMC Genomics, 2015.

Ph.D and Masters thesis

1. **Learning from disparate data: Applications in Biometrics and Sustainability**,
   N. Pokhriyal, PhD thesis, University at Buffalo, State University of New York, 2019.
2. **Nucleosome Landscape Analysis for Novel Gene Discovery Via Machine Learning**,
   N. Pokhriyal, Masters thesis, University at California, Riverside, 2009.

Peer-reviewed conference proceedings

1. **Social media data reveals signal for public consumer perceptions**,
   N. Pokhriyal, Abenezer Dara, Benjamin Valentino, and Soroush Vosoughi, ACM International Conference on AI in Finance (ICAIF '20), 2020
2. **Multi-view learning from disparate sources for Poverty Mapping**,
   N. Pokhriyal, AAAI Conference on Artificial Intelligence Doctoral Consortium, 2019
3. **A Computational Approach to Poverty Mapping**,
   N. Pokhriyal, V. Govindaraju, International Conference on Computational Sustainability, Cornell, 2016.
4. **Virtual Network and Poverty Analysis in Senegal**,
   N. Pokhriyal, W. Dong, V. Govindaraju, NetMob, MIT, 2015
5. **A Large-scale Study of Language Usage as a Cognitive Biometric Trait**,
   Neeti Pokhriyal, I. Nwogu, V. Govindaraju, Elsevier Handbook on Big Data Analytics, 2015 (Invited).
6. **Use of Language as a Cognitive Biometric Trait**,
   N. Pokhriyal, I. Nwogu, V. Govindaraju, at IEEE International Joint Conference on Biometrics, 2014.
7. **Novel Gene Discovery in the Human Malaria Parasite using Nucleosome Positioning Data**,
   N. Pokhriyal, N. Ponts, E. Harris, K. Le Roch and S. Lonardi, International Conference on Computational Systems Bioinformatics, Stanford, 2010.
8. **Anomaly Detection for High Fidelity Core Simulators**,
   N. Pokhriyal, U. Mertyurek, A. Godfrey, J. J. Billings, In Proc. of the American Nuclear Society Annual Meeting, 2013.

Under Review

1. **An interpretable model for real-time tracking of economic indicators**,
   N. Pokhriyal, Benjamin Valentino, Soroush Vosoughi, *Under Review*, ACM Transactions on Data Science, 2020.

Selected Recent Talks

1. **Social media data reveals signal for public consumer perceptions**,
   ACM International Conference on AI in Finance (ICAIF '20), 2020
2. **Estimating poverty, inequality and social deprivations in Haiti via machine learning techniques**,
   National Statistics Office of Haiti, Port-au-Prince and Inter-American Development Bank, Washington DC, 2020
3. **Combining disparate data sources for improved poverty prediction and mapping**,
   National Statistics Office of Senegal, United Nations Development Program (UNDP), UNICEF, Dakar, Senegal, 2019.

4. **Multi-view learning from disparate sources for Poverty Mapping**, AAAI Conference on Artificial Intelligence Doctoral Consortium, 2019.

5. **A Computational Approach to Poverty Mapping**, International Conference on Computational Sustainability, Cornell, 2016.

6. **Virtual Networks and Poverty Analysis - A case study**, National Statistics Office of Senegal, Dakar, June and November 2015.

7. **Virtual Networks and Poverty Analysis in Senegal**, NetMob, MIT, April 2015.

Recent Service

- Reviewer for Proceedings of National Academy of Science(PNAS) 2020, International conference on Biometrics (ICB), Biometrics: Theory, Applications and Systems (BTAS)

- Recent grant writing experience
  Irving Institute seed grant program, Dartmouth College (2020);
  Neukom Institute for Computational Science CompX Faculty grants, Dartmouth College (2020);
  NSF Center for Identification Technology Research (CITeR) proposal (2016)

- Mentoring: Kshitij Tayal (as visiting Masters student, now Ph.D student at University of Minnesota); Saumya Tripathi (as a visiting undergraduate student)