

Stanford



Bibek Paudel

Postdoctoral Research Fellow, Biomedical Data Sciences

Bio

BIO

I am a Postdoctoral Research Fellow at the Department of Biomedical Data Science. My research focuses on developing machine learning and statistical models to solve problems that are inter-disciplinary in nature, including those from the biomedical, ecological, and socio-political sciences. I received my Ph.D. in Computer Science from University of Zurich, Switzerland in 2019, where I developed new algorithms to improve recommendation diversity and algorithmic fairness. I used graph theory, deep learning, and latent-factor models to build documents representations, explainable knowledge base embeddings, and personalization systems. At Stanford, I am building new machine learning models for personalized medicine by combining biological domain knowledge and large heterogeneous datasets. My research spans both ends of the biomedical data spectrum: from single-cell observations to population health data. I am particularly interested in examining the disparate health impacts of environmental factors on vulnerable and minority populations and in understanding how these findings can guide policy interventions.

STANFORD ADVISORS

- Mark Cullen, Postdoctoral Faculty Sponsor

Publications

PUBLICATIONS

- **Iteratively Learning Embeddings and Rules for Knowledge Graph Reasoning**
Zhang, W., Paudel, B., Wang, L., Chen, J., Zhu, H., Zhang, W., Bernstein, A., Chen, H., Assoc Comp Machinery
ASSOC COMPUTING MACHINERY.2019: 2366–77
- **Loss Aversion in Recommender Systems: Utilizing Negative User Preference to Improve Recommendation Quality** *The First International Workshop on Context-Aware Recommendation Systems with Big Data Analytics (CARS-BDA), co-organized with the 12th ACM International Conference on Web Search and Data Mining*
Paudel, B., Luck, S., Bernstein, A.
2019
- **Interaction Embeddings for Prediction and Explanation in Knowledge Graphs**
Zhang, W., Paudel, B., Zhang, W., Bernstein, A., Chen, H., ACM
ASSOC COMPUTING MACHINERY.2019: 96–104
- **Cross-Cutting Political Awareness through Diverse News Recommendations** *European Symposium Series on Societal Challenges in Computational Social Science*
Paudel, B., Bernstein, A.
EuroCSS.2019
- **Bringing Diversity in News Recommender Algorithms** *ECREA 2018 - pre-conference workshop on Information, Diversity and Media Pluralism in the Age of Algorithms*
Paudel, B., Tolmeijer, S., Bernstein, A.

2018

- **Aligning Knowledge Base and Document Embedding Models Using Regularized Multi-Task Learning**

Baumgartner, M., Zhang, W., Paudel, B., Dell'Aglio, D., Chen, H., Bernstein, A., Vrandečić, D., Bontcheva, K., Suarez-Figueroa, M. C., Presutti, Celino, Sabou, M., Kaffee, L. A., Simperl, et al

SPRINGER INTERNATIONAL PUBLISHING AG.2018: 21–37

- **Updatable, Accurate, Diverse, and Scalable Recommendations for Interactive Applications** *ACM TRANSACTIONS ON INTERACTIVE INTELLIGENT SYSTEMS*

Paudel, B., Christoffel, F., Newell, C., Bernstein, A.

2017; 7 (1)

- **Fewer Flops at the Top: Accuracy, Diversity, and Regularization in Two-Class Collaborative Filtering**

Paudel, B., Haas, T., Bernstein, A., ACM

ASSOC COMPUTING MACHINERY.2017: 215–23

- **Random Walk TripleRush: Asynchronous Graph Querying and Sampling**

Stutz, P., Paudel, B., Verman, M., Bernstein, A., ACM

ASSOC COMPUTING MACHINERY.2015: 1034–44

- **Blockbusters and Wallflowers: Accurate, Diverse, and Scalable Recommendations with Random Walks** *RecSys '15: Proceedings of the 9th ACM Conference on Recommender Systems*

Christoffel, F., Paudel, B., Newell, C., Bernstein, A.

ASSOC COMPUTING MACHINERY..2015: 163–170