Pranav Sankhe

github.com/pranavsankhe

Email : pranavgi@buffalo.edu
Mobile : (716)-430-1928

EDUCATION

- **University at Buffalo** — Buffalo, NY
  PhD in Computer Science; 3nd Year; Advisors: Dr.Varun Chandola, Dr.Kenneth Joseph — *Aug 2019 – June 2023*
- **University at Buffalo** — Buffalo, NY
  Master of Science in Computer Science; GPA: 3.6/4.0 — *Aug 2017 – May 2019*
- **University of Mumbai** — Mumbai, India
  Bachelor of Engineering in Computer Engineering; GPA: 7.8/10.0 — *Sep 2013 – May 2017*
- **Thakur College of Science and Commerce** — Mumbai, India
  Grade 12: Graduated First Class with Distinction — *Aug 2011 - Feb 2013*
- **M.K.V.V. International Vidyalaya** — Mumbai, India
  Grade 10; CGPA: 10.0/10.0 — *July 2009 - May 2011*

PROGRAMMING SKILLS

- **Languages:** Python(highly proficient), MATLAB(highly proficient), R(moderately proficient),
- **ML/CV:** DoWhy, Causallib, PyTorch, TensorFlow, Pandas, GeoPandas, Sklearn, SciPy, hdf5, Numba, OpenCV, Open3d.

WORK EXPERIENCE

- **IBM Research** — Yorktown, NY
  PhD Research Intern — *May 2020 - Oct 2020*
  - **TableNN**: Developed a framework for learning tabular data that resulted in a publication and a patent.
- **ByteDance Research** — San Jose, CA
  Graduate Researcher — *Sep 2018 - May 2019*
  - **3D Computer Vision**: Collaborative project under the guidance of Dr.Yuan to develop a novel hand pose estimation method.
- **University at Buffalo** — Buffalo, NY
  Research and Teaching Assistant — *Aug 2019 - Present*
  - **Research Assistant - Machine Learning**: Multidisciplinary project jointly funded by NSF and Amazon.
  - **Teaching Assistant - Discrete Mathematics & Machine Learning**:
- **Unemployed** — Mumbai, India
  Mar 2013 - Aug 2013

PUBLICATIONS

- **Sankhe, P.**, Hall, S., Sage, M., Rodriguez M., Chandola, V., Joseph K.(2022) Mutual Information Scoring: Increasing Interpretability in Categorical Clustering Tasks. *SBP-BRiMS 2022*

- Joseph, K., Chen, W., Ionescu, S., Du, Y., **Sankhe, P.**, Hannak, A., Rudra, A.(2022). A Qualitative, Network-centric Method for Modeling Socio-technical Systems, with Applications to Evaluating Interventions on Social Media Platforms to Increase Social Equality. *Applied Network Science 2022 7:49*

- **P. Sankhe**, E. Khabiri, B. Agrawal and Y. Li, (2021) "TableNN: Deep Learning Framework for Learning Domain Specific Tabular Data," *2021 IEEE International Conference on Big Data (Big Data), 2021, pp. 4097-4102*

- Bhavna, A., Elham, K., Yingjie, L.,**Sankhe, P.** "Generating Unique Work Embeddings for Jargon Specific Tabular Data for Neural Network Training and Usage". *17/483989, filed Sep 24, 2021.*

- **Sankhe, P.**, Junsong, Y., Chen, F., Xiaohui S. (2019). Fast 3D Hand Pose Estimation Using Dynamic Graph NN. Unpublished manuscript, University at Buffalo, ByteDance Research.

- "Crude Oil Price Forecasting Using Neural Network" @ *Imperial Journal of Interdisciplinary Research (IJIR 2017)*

PROJECTS

- **Mitigating Geriatric Medication Harm during Transition of Care (On-Going)**:
  - Estimating the drug dose response curve on geriatric patients.
  - Isolating individual drug causal effect from possibly multiple drug regime with varying dosage.
  - Developing a flexible neural network based causal effect estimator. Based on inverse propensity weighting framework which is known to reliably isolate causal effect.

- **Discovering Causal Effect of Independent Living Services on Foster Youths (Under Review @ FACCT 2023)**:
  - Recovering from non-responders bias in survey data beyond *s-Recoverability*.
  - Variable selection and causal effect estimation using an oracle estimator - modified outcome-adaptive lasso.
  - Adjusting for observed confounding factors in the foster care pipeline and sensitivity analysis for unobserved confounding.

- **Race, Ethnicity, and Evictions in New York City (Under Review @ SSWR-2022 Symposium)**:
  - Mediation analysis of various pathways by which racial segregation leads to home evictions.
  - Our results is robust to unobserved confounding factors and indicate a much higher impact of segregation on evictions than previously reported.

- **TableNN Framework**:
  - Cell-Masking: A novel text tokenization method to tackle alphanumeric or coded data.
  - Cell2Vec: Text embedding method that exploits the tabular structure of the data.
  - An attention based classification network to learn tabular data.

- **Fast 3D Hand Pose Estimation Using Dynamic Graph NN**:
  - Estimating hand pose in 3D space for virtual reality applications using input from a depth camera.
  - Posing hand pose estimation as a dynamic graph learning problem.
  - Achieved state-of-the-art accuracy of 8.1mm @ 102 fps on Microsoft MSRA Hand Pose Dataset.

- **Crude Oil Price Forecasting Using Neural Networks**:
  - Survey of quantitative models to forecast crude oil prices.
  - Predict the trend in the oil prices and regress the numeric value of the oil prices.