MD MUHTASIM BILLAH

PhD Candidate | Data Science | Machine Learning | Statistics | Stochastic Modeling Personal Website: mdmuhtasimbillah.netlify.app | Google Scholar ID: scholar.google.com/mmb Contact Info: @ mdmuhtasim.billah@wsu.edu 509-330-6287

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WORK EXPERIENCE

Graduate Research/Teaching Assistant **Washington State University**

am Aug 2018 - Ongoing

Pullman, WA

- Used finite volume method (FVM) for solving inverse heat transfer problems using the Bayesian Inference machine learning algorithm.
- Developed and further improved a preexisting probabilistic model based on Metropolis Monte Carlo method written in C++ and Fortran.
- Utilized the stochastic model for studying the key parameters of transcytosis for drug delivery through blood brain barrier (BBB) as an aid for neurodegenerative diseases such as Alzheimer's and Parkinson's.
- Studied design parameters and relevant characteristic properties for manufacturing functional nanoparticle for drug delivery to the brain.

DATA SCIENCE PROJECTS

- Multilabel Classification of Drug from Mechanism of Action (MoA) Link
 - * Employed several DNN architectures i.e. FFNN, ResNet, LSTM etc.
 - * Performed multilabel stratified k-fold cross validation for resampling.
 - * Created model ensemble to further minimize the cross entropy loss.
 - * Acquired bronze medal in associated Kaggle competition (2020). Link
- End-to-end Recommender Systems for Amazon Products Link
 - * Used Apache Spark to handle large Amazon datasets (233M reviews).
 - * Wrote Python and SQL scripts to parse and import data into MySQL.
 - * Applied multiple memory based (both user and item based) and model based (SVD, ALS matrix factorization) collaborative filtering methods.
 - * Harnessed fast cloud computing environment on AWS EC2 (Linux).
- Cancer Classification from Gene Expression Monitoring Link
 - * Applied k-means clustering on gene expression (microarrays) data.
 - * Performed dimensionality reduction (PCA) on 7,123 human genes.
- Socioeconomic Factors vs Female Employment in Bangladesh Link
 - * Processed World Bank data on Bangladesh spanning over 30 years.
 - * Performed regression analysis on the trend of female employment.

PUBLICATIONS

Journal Articles

- Al Khan, MM Billah, C Ying, J Liu, P Dutta, Bayesian Method for Parameter Estimation in Transient Heat Transfer Problem, International Journal of Heat and Mass Transfer (2020) 166, 120746. Link
- MM Billah, H. Deng, P. Dutta, J. Liu, Receptor Mediated Endocytosis with and without Clathrin Dependency: Key Parameters Study, Nanoscale (To be submitted).

Conference Proceedings

• MM Billah, H. Deng, P. Dutta, J. Liu, Investigation of the Key Parameters Impacting the Receptor Dependent Clathrin-mediated Endocytosis through Stochastic Modeling and Simulations American Physical Society, (2019) L32-003. Link

EDUCATION

tistical Computing

Ph.D. Mechanical Engg. GPA: 3.94/4.00 **Washington State University 苗** Aug 2022

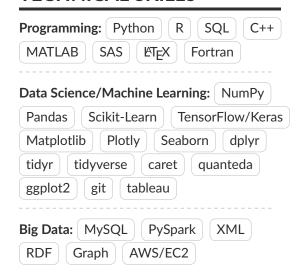
Multiscale Modeling, Stochastic (Monte Carlo) Simulations

M.S. Statistics GPA: 4.00/4.00 Washington State University

Relational Database, Machine Learning, Sta-

B.S. Mechanical Engg. GPA: 3.55/4.00 BGD U. of Engg. and Tech. **Feb 2017**

TECHNICAL SKILLS



AWARDS/HONORS

- Bronze medal (top 9%), Kaggle mechanism of action (MoA) detection competition, 2020.
- Best project (1st of 15 teams) award, CptS 415: Big Data, WSU, Fall 2020.
- Dean's List Scholarship, Faculty of Mechanical Engineering, BUET 2017.
- University Merit Scholarship, BUET 2016.
- Dean's List Scholarship, Faculty of Mechanical Engineering, BUET 2016.

CERTIFICATES

- Deep Learning Specialization (Coursera) Link
- Machine Learning (Coursera) Link
- Python Programming (DataCamp) Link
- Data Scientist with Python (Ongoing)