

SADMAN SADEED OMEE

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EXPERIENCE

University of South Carolina

January 2022 – Current

Graduate Research Assistant (Machine Learning and Evolution Laboratory)

Columbia, SC, United States

- **Research topic:** I use deep learning techniques to solve materials informatics problems (e.g., crystal structure prediction, materials property prediction)
- **Concept / skills usage:** I use mostly Graph Neural Networks (GNNs) for my research. I have also used Transformers and Generative Models. I am fluent in using PyTorch and PyTorch Geometric.

University of South Carolina

August 2021 – December 2021

Graduate Teaching Assistant (Course: General Applications Programming)

Columbia, SC, United States

- Taught HTML, CSS, and JavaScript to two lab group students.

Bangladesh University of Engineering and Technology

May 2019 – July 2021

Research Student (Graph Drawing and Information Visualization Laboratory)

Dhaka, Bangladesh

- Worked on unsupervised learning, mostly developing hierarchical clustering algorithms.

PUBLICATIONS

Journal Articles

1. “Scalable deeper graph neural networks for high-performance materials property prediction”, **Sadman Sadeed Omees**, Steph-Yves Louis, Nihang Fu, Lai Wei, Sourin Dey, Rongzhi Dong, Qinyang Li, Jianjun Hu, *Patterns*, 2022.
2. “Materials property prediction with uncertainty quantification: A benchmark study”, Daniel Varivoda, Rongzhi Dong, **Sadman Sadeed Omees**, Jianjun Hu, *Applied Physics Reviews*, 2023.
3. “DeepXRD: A deep learning model for predicting XRD spectrum from material composition”, Rongzhi Dong, Yong Zhao, Yuqi Song, Nihang Fu, **Sadman Sadeed Omees**, Sourin Dey, Qinyang Li, Lai Wei, Jianjun Hu, *ACS Applied Materials & Interfaces*, 2022.
4. “MaterialsAtlas.org: A materials informatics web app platform for materials discovery and survey of state-of-the-art”, Jianjun Hu, Stanislav Stefanov, Yuqi Song, **Sadman Sadeed Omees**, Steph-Yves Louis, Edirisuriya M. D. Siriwardane, Yong Zhao, *npj Computational Materials*, 2022.
5. “Material transformers: Deep learning language models for generative materials design”, Nihang Fu, Lai Wei, Yuqi Song, Qinyang Li, Rui Xin, **Sadman Sadeed Omees**, Rongzhi Dong, Edirisuriya M Dilanga Siriwardane, Jianjun Hu, *Machine Learning: Science and Technology*, 2023
6. “Accurate prediction of voltage of battery electrode materials using attention-based graph neural networks”, Steph-Yves Louis, Edirisuriya M. D. Siriwardane, Rajendra P. Joshi, **Sadman Sadeed Omees**, Neeraj Kumar, Jianjun Hu, *ACS Applied Materials & Interfaces*, 2022.
7. “Global mapping of structures and properties of crystal materials”, Qinyang Li, Rongzhi Dong, Nihang Fu, **Sadman Sadeed Omees**, Lai Wei, Jianjun Hu, *Journal of Chemical Information and Modeling*, 2023.
8. “TCSP: A template-based crystal structure prediction algorithm for materials discovery”, Lai Wei, Nihang Fu, Edirisuriya M. D. Siriwardane, Wenhui Yang, **Sadman Sadeed Omees**, Rongzhi Dong, Rui Xin, Jianjun Hu, *Inorganic Chemistry*, 2022.

RELEVANT SKILLS

Programming languages: Python, C, C++, Java, JavaScript

Machine learning (ML) / deep learning (DL) concepts: Updated with the latest state-of-the-art CNN, RNN, GNN, Transformer, and Generative model architectures

ML / DL frameworks: PyTorch, Tensorflow, PyTorch Lightning, Keras, Scikit-learn

ML / DL libraries: PyTorch Geometric (PyG), Deep Graph Library (DGL), Transformers (Hugging Face), PyTorch-Ignite, Pandas, Numpy, Scipy, Pymatgen, KGCNN, NetworkX, Hyperopt

EDUCATION

University of South Carolina

Ph.D. in Computer Science

Current GPA: 3.95/4.00

August 2021 – Present
Columbia, SC, United States

Bangladesh University of Engineering and Technology

B.S. in Computer Science

February 2015 – April 2019
Dhaka, Bangladesh

REFERENCES

1. **Dr. Jianjun Hu** (Research Supervisor and Academic Advisor)
Professor, Department of Computer Science and Engineering, University of South Carolina, E-mail: jianjunh@cec.sc.edu
2. **Dr. Marco Valtorta** (Department Head)
Professor, Department of Computer Science and Engineering, University of South Carolina, E-mail: mgv@cse.sc.edu