Tatiana Chakravorti

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Education

Pennsylvania State University — **University Park, Pennsylvania**
Ph.D., Informatics | Advisor: Dr. Sarah Rajtmajer — Expected May 2025

Institution: Siksha 'O' Anusandhan University — **Bhubaneswar, Odisha**
Ph.D., Electronics and Communication Engineering | Advisor: Prof. P. K. Das — 2019

West Bengal University of Technology — **Kolkata, West Bengal**
MTech, Electronics and Communication Engineering — 2014
BTech, Electronics and Communication Engineering — 2011

Research Experience

Graduate Research Assistant — **Pennsylvania State University, USA**
Air Force Office of Scientific Research Project — 2023-Present

- Survey-based study for Human-AI interaction and AI Trust

Defense Advanced Research Projects Agency (SCORE Project) — 2021-2023

- Interview and Observations with researchers on reproducibility crisis.
- Survey with geographically diverse researchers on reproducibility and open science.
- Opportunities and limitations of AI-empowered tools to support reproducible and replicable research workflows.
- Design implementation of Human AI collaboration and important features for the AI-empowered tool according to the researchers.
- Integration of signals of credibility into researchers' literature search and review process.

Microgrid Disturbance Detection — **Siksha 'O' Anusandhan University, India**

- Detection and classification of different disturbances in microgrids using different signal processing technics. — 2016-2018

Project Assistant — **University of Applied Science, Augsburg, Germany**
LINDA Project — 2017

- Analyzing the data collected from the Local Island Power Supply with Distributed Generation Systems in Case of Large-Scale Blackouts.

Work Experience

Graduate Teaching Assistant — **Pennsylvania State University, USA**

- Language, Logic, and Discrete Math — Fall2023
- Privacy and Security for Data Sciences — Fall2022
- Foundations of Data Privacy — Spring2022
- Seminar for Data Science — Spring2022

Assistant Professor **KL University, India**

- Teaching Machine Learning and basic Python 2019-2020
- Supersized BTech Projects 2019-2020
    1. Real World Anomaly Activity Detection in Surveillance Videos using Deep Learning.
    2. Power Quality Pattern Recognition and Classification using the HHT and Fuzzy Logic.

Visiting Faculty **Sudhir Chandra Sur Degree Engineering College, India**

- Teaching Basic Electronics and Communication 2014

Skills

Programming Language: Python, MATLAB/Simulink, C Language
Analysis Methods: Qualitative: Interview, observation, usability, diary study, focus group; Quantitative: Survey, user testing; UX: Heuristic evaluation, scenarios, personas, storyboarding.

Awards

Honorable Mention Poster Award: **"EXCELLENCE AT CAPWIC"**. 2023
IST Travel Award: AAMAS Conference 2023

Workshop and Poster Presentations

Chakravorti, Tatiana, and Sarah Rajtmajer. "Designing Hybrid Crowd +AI Prediction Markets for Estimating Scientific Replicability", Human Machine Collaboration Workshop, Paris, 2022. (workshop)
Chakravorti, Tatiana, and Sarah Rajtmajer. "Hybrid Prediction Markets for Estimating Research Reproducibility", ACM Capital Region Celebration of Women in Computing, Virginia, 2023. (Poster)
Chakravorti, Tatiana, and Sarah Rajtmajer. "Human AI collaboration for the artificial prediction markets", Rao Conference, Pennsylvania State University, State College, 2023. (Poster)

Service and Leadership

Mobile-HCI Conference | **Student Volunteering** 2023
CHI Conference | **Paper Reviewer** 2023
International wing of KL University, India | **Departmental Coordinator** 2019-2020
Electronics and Computer Science Department, KL University, India | **Library In-charge** 2019-2020
Electronics and Computer Science Department, KL University, India | **Course Coordinator** 2019-2020
IEEE Power, Communication and Information Technology, India | **Organizing Committee Member** 2015

Publications: Journals

1. **Chakravorti, Tatiana**, and Penke Satyanarayana. "Non-linear system identification using kernel-based exponentially extended random vector functional link network." *Applied Soft Computing* 89 (2020): 106117.
2. Bisoi, Ranjeeta, **Tatiana Chakravorti**, and Nihar Ranjan Nayak. "A hybrid Hilbert Huang transform and improved fuzzy decision tree classifier for assessment of power quality disturbances in a grid-connected distributed generation system." *International Journal of Power and Energy Conversion* 11, no. 1 (2020): 60-81.
3. **Chakravorti, Tatiana**, Lipsa Priyadarshini, P. K. Dash, and Badri Narayan Sahu. "Islanding and non-islanding disturbance detection in microgrid using optimized modes decomposition based robust random vector functional link network." *Engineering Applications of Artificial Intelligence* 85 (2019): 122-136.
4. **Chakravorti, Tatiana**, N. R. Nayak, Ranjeeta Bisoi, P. K. Dash, and Lokanath Tripathy. "A new robust kernel ridge regression classifier for islanding and power quality disturbances in a multi-distributed

generation based microgrid." *Renewable Energy Focus* 28 (2019): 78-99.

5. **Chakravorti, Tatiana**, and Pradipta Kishore Dash. "Multiclass power quality events classification using variational mode decomposition with fast reduced kernel extreme learning machine-based feature selection." *IET Science, Measurement & Technology* 12, no. 1 (2018): 106-117.
6. **Chakravorti, Tatiana**, Rajesh Kumar Patnaik, and Pradipta Kishore Dash. "Detection and classification of islanding and power quality disturbances in microgrid using hybrid signal processing and data mining techniques." *IET Signal Processing* 12, no. 1 (2018): 82-94.
7. **Chakravorti, Tatiana**, Rajesh Kumar Patnaik, and Praditpta Kishor Dash. "Advanced signal processing techniques for multiclass disturbance detection and classification in microgrids." *IET Science, Measurement & Technology* 11, no. 4 (2017): 504-515.
8. Nanda, Sarita, **Tatiana Chakravorti**, and P. K. Dash. "A new Taylor-LMS adaptive filter for parameter estimation of power signals including distributed generation systems." *Australian Journal of Electrical and Electronics Engineering* 13, no. 3 (2016): 174-194.
9. Nanda, Sarita, P. K. Dash, **Tatiana Chakravorti**, and Shazia Hasan. "A quadratic polynomial signal model and fuzzy adaptive filter for frequency and parameter estimation of nonstationary power signals." *Measurement* 87 (2016): 274-293.

Publications: Conferences

1. **[Under Review] Chakravorti, Tatiana,** Chuhao Wu, Sai Koneru and Sarah Rajtmajer. "Perspectives from India: Challenges and Opportunities for Computational Tools to Enhance Confidence in Published Research." In CHI 2024.
2. **[Under Review]** Chuhao Wu, **Tatiana Chakravorti**, and Sarah Rajtmajer. "Integrating measures of replicability into literature search: Challenges and opportunities" In CHI 2024.
3. **Chakravorti, Tatiana**, Robert Fraleigh, Timothy Fritton, Michael McLaughlin, Vaibhav Singh, Christopher Griffin, Anthony Kwasnica, David Pennock, C. Lee Giles, and Sarah Rajtmajer. "A Prototype Hybrid Prediction Market for Estimating Replicability of Published Work." In *HHAI 2023: Augmenting Human Intellect*, pp. 300-309. IOS Press, Germany, 2023.
4. **Chakravorti, Tatiana**, Vaibhav Singh, Sarah Rajtmajer, Michael McLaughlin, Robert Fraleigh, Christopher Griffin, Anthony Kwasnica, David Pennock, and C. Lee Giles. "Artificial Prediction Markets Present a Novel Opportunity for Human-AI Collaboration." In *Proceedings of the 2023 International Conference on Autonomous Agents and Multiagent Systems*, pp. 2304-2306, London, 2023.
5. **Chakravorti, Tatiana**, Vinay Kumar Addala, and J. Shivam Verma. "Detection and classification of COVID 19 using convolutional neural network from chest X-ray images." In *2021 6th international conference for convergence in technology (I2CT)*, pp. 1-6. IEEE, India, 2021.
6. **Chakravorti, Tatiana**, and Penke Satyanarayana. "Classification of power quality disturbances using adaptive variational mode decomposition based random vector functional link network." In *2019 IEEE Region 10 Symposium (TENSYMP)*, pp. 721-726. IEEE, India, 2019.
7. Das, Debashreeta, **Tatiana Chakravorti**, and P. K. Dash. "Hilbert huang transform with fuzzy rules for feature selection and classification of power quality disturbances." In *2017 4th IEEE Uttar Pradesh Section International Conference on Electrical, Computer and Electronics (UPCON)*, pp. 439-445. IEEE, India, 2017.
8. **Chakravorti, Tatiana**, and P. K. Dash. "Morphology based fuzzy approach for detection & classification of simultaneous power quality disturbances." In *2016 IEEE Annual India Conference (INDICON)*, pp. 1-6. IEEE, India, 2016.
9. **Chakravorti, Tatiana**, R. K. Patnaik, and P. K. Dash. "A morphological filter based disturbance detection and classification technique for DFIG wind farm based microgrid." In *2015 IEEE Power, Communication and Information Technology Conference (PCITC)*, pp. 979-985. IEEE, India, 2015.