

Pranshu Tiwari

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Professional Summary

Seasoned Data Scientist, AI, and Innovation Consultant with 18+ years of expertise driving AI and digital transformation in the energy, insurance, and engineering sectors. Experienced in Machine Learning, Natural Language Processing, and advanced analytics to develop predictive models and optimize processes. An award-winning innovator and researcher with 30 filed patents at IBM and SE & team management skills

Work Experience

Schneider Electric | Boston, MA

AI Consultant-Data Science Principal | January 2023 – Present

Data Science/AI

- Automate labeling for a Power Insulator Image dataset by developing an auto-labeling system, outperforming the U-Net-based semantic segmentation model by 15%.
- Improve anomaly detection accuracy by 8% by integration of semi-supervised machine learning and Faster R-CNN on images creating a new detection algorithm over conventional approaches
- Create a *new business offering* by formulating and implementing a multi-factor optimization framework to establish a reselling agreement with a “Sustainability vendor” for SE Automation Team
- Decrease plant operational costs by leading a team of 4 people in developing a groundbreaking AI framework over the Life Cycle Assessment process, optimizing operational workflows using Genetic Algorithm and Deterministic Optimization
- Formulate a waste function using double cross validated Lasso/Elastic Net and Neural Networks to analyze input, applied input, output, and cost variables and simulated for sustainable outcomes
- Engineer a deep CNN-based power quality assessment model to identify and correlate power line faults with SE IP and offering using Time Series Signal analysis and waveforms.
- Develop 5 patents by leveraging research and machine learning expertise to create intellectual property in SE within 20 months and incubated 2 New Offerings.

IBM | Boston, MA

Master Inventor/Data Scientist & Managing Consultant | December 2008 – January 2023

Data Science/AI

- Led Optimizing Module to create dispositions for IBM HR to hire or contract or train based on forecasted seats vs forecasted demand leading to improved decision making by management.
- Running Forecasting for over 200,000 time series using cohorts and unsupervised machine learning before feeding to Different Machine Learning models to create Statistical confidence on Forecasting using MAPE optimization and confidence level to show AI transparency
- Predicted ERT for a Geographical storm based on gust speed, location, wind speed to improve accuracy of resolution of outages.
- Created Forecasting models different stock items post clustering of different time series and created Forecast Sales using multi models – ARIMA, SARIMAX and RNN to identify cohorts with sales >5% increase, less than 10% with a confidence level score to give transparency to different merchandisers (University) for optimizing their stocks. The project included model selection based on best MAPE score.
- Achieved 70% accuracy in recurrent neural network-based text processing (TFIDF) using Tensor Flow Python for prediction of stock prices.
- Drafted 42 disclosures, leading 24 current patent filings with the USPTO, securing 7 patent grants. These patents were based primarily on Machine Learning and Optimization-deterministic and Genetic Algorithm

- Published research applied in Google’s virtual machine deployment, earning 15+ citations based on Markov Chain/MMQ model.

Digital & Strategy

- Spearheaded performance testing and optimization at Xcel Energy US, enhancing system stability during storm events by 10%.
- Drove a \$10M deal with IBM by spearheading the creation of a FOAK algorithm in Revenue Assurance to optimize revenue detection for a Telecommunication in Mexico
- Drove Master Data Management Project to identify root cause of revenue leakage for Bharti Airtel India
- Drove Digital Transformation Roadmap to improve front-end experience for National Grid US
- Led the conceptual Data Quality Model including Data Dictionary for Electricity Asset Management module for National Grid UK to improve quality of data for correctness, currency, complete and enforce business rules to improve information flow for National Grid Electricity Transmission
- Application Portfolio Rationalization for Property Management in National Grid US and Telecom Operator In India
- Prepare Return of Investment for New Proposals as Business Analysis in National Grid UK for over 10 projects
- Managed First Major Micro services container based Program -Small Market Digital for MetLife, US

Additional Experience

W IPRO LTD | Associate Consultant, ALSTOM | Engineer Trainee Relays, BHEL| Trainee

Additional AI Projects

- Created Forecasting models different stock items post clustering of different time series and created Forecast Sales using multi models – ARIMA,SARIMAX and RNN to identify cohorts with sales >5% increase , less than 10% with a confidence level score to give transparency to different merchandisers (University) for optimizing their stocks. The project included model selection based on best MAPE score.
- Risk Stratification based on Health Profile of Customers in R that led to 85% accuracy.
- Energy Forecasting using Markov Chain in R creating transition matrix for simulations
- Categorized Brain Scanned Images for cancer and non-cancer Patients using CNN with accuracy of 90%

Skills

Convolutions, Machine Learning and AI, Computer Vision, Time Series Analysis Algorithm Development, IP Generation, Optimizing Metrics, RNN, Statistical Learning, Technology Strategy, Product Strategy & Roadmap, Client Relationship Management, Business Architecture & Component Business Modelling

Technologies

Programming Languages: Python, R,SQL

Libraries: NumPy, SciPy, OpenCV, Scikit, Keres, Glove,

Machine Learning and Deep Learning Frameworks: Convolution, LSTM, Homography, Feed-Forward

Generative Models: Auto-Encoder, LLM, Topic Modelling,

Version Control and Collaboration Tools: GIT

Process Mapping: Visio Process Maps

Neural Networks & Deep Learning Frameworks: NNET, Keres, RESNET, VGGNet, PyToch

Strategy

IBM Component Business Modeling, I

IBM Application Rationalization, Target Operating Model
AI driven Cloud Migration Model(IBM IP Owner)

Education

Master of Science in Data Science | University of Wisconsin, Eau-Claire | 2022
Master of Science in Mathematics Operations Research | Northeastern University | 2021
Master of Business Administration | Ecole Pont's Business School France | 2005
Bachelor of Science in Electrical Engineering | University of Madras 2002

Certifications and Training

Computer Vision Certification | Carnegie Mellon University
IBM Master Inventor | IBM Honor| 2021
IBM Sr. Inventor | IBM Honor | 2017
Machine Learning Method Certificate | University of California San Diego
Life Cycle Assessment Certification | Green House Gas Protocol

Awards

IBM CEO Plateau Award (5 Times)
IBM Master Inventor Award
Honored IBM Senior Inventor Award (4 times)
Top Contributor Award (3 Times)
SE Patent Award(2 times)

Patents (Cited)

Bharti, H., & Tiwari, P. (2017, May 9). US10558206B2 - Electrical Device Degradation Determination - Google Patents. <https://patents.google.com/patent/US10558206B2/en>
Bharti, H., & TIWARI, P. (2015, July 17). US20170017913A1 - Managing Data Quality and Compliance - Google atents. <https://patents.google.com/patent/US20170017913A1/en>
Tiwari, P. (2015, February 4). US20160224965A1 - Determining an Optimal Payment Instrument by a Cloud-Enabled Mobile Payment Service - Google Patents. <https://patents.google.com/patent/US20160224965A1/en>
Tiwari, P et.al(2020, January 22). US11093229B2 Deployment scheduling using failure rate prediction Google Patents. <https://patents.google.com/patent/US11093229B2/en>
Tiwari, P., Thapliyal, A. K., Bharti, H., & Patra, A. K. (2020, November 5). US11810209B2 - Outage restoration time prediction during weather events and optimized solutions for recovery Google Patents. <https://patents.google.com/patent/US11810209B2/en>
Tiwari, P., Bharti, H., Patel, S., Narayanaswamy, N., & Sahoo, A. K. (2023, January 12). US20240241707A1 - Optimizing components for multi-cloud applications with deep learning models - Google Patents. <https://patents.google.com/patent/US20240241707A1/en>
Tiwari et.al 2023, SE AI based optimized Carbon Twin for efficient operations based on optimization
TIWARI, P., BHARTI, H., TREHAN, S., CHETAL, A., & INTERNATIONAL BUSINESS MACHINES CORPORATION. (2021). METRICS FOR ENERGY SAVING AND RESPONSE BEHAVIOR (Patent No. 20210241392A1). In Patent Application Publication (No. 20210241392A1).
US.<https://patentimages.storage.googleapis.com/eb/6c/d3/e3130778845cb6/US20210241392A1.pdf>
Saxena, R. K., Tiwari, P., & Yadav, V. (2016, January 7). US9766693B2 - Scheduling framework for virtual machine power modes- Google Patents. <https://patents.google.com/patent/US9766693B2/en>

Publications

Tiwari, P., & Patel, S. (2019). Role of Analytics & Big Data for Predicting Risk for Insured and Eliminating Fraud. ResearchGate. <https://www.researchgate.net/publication/334491885>
Tiwari et.al (2021). Persona-Based Drug Recommender System using Online Reviews.10.13140/RG.2.2.29049.19048.
Tiwari.et.al (2024) Investing Outlier Detection and Model Evaluation Faster R-CNN with Unsupervised ML