Purva PATEL

Data Scientist | Computational Modeling and Simulation

linkedin.com/in/purvapatel117/
github.com/Purva117
+49 179 4157 537 purva.informatik@gmail.com Dresden, 01217, DE

Professional Experience

December 2023 – May 2023 | **Computational Analyst, Physics of Life, Dresden, DE**
- Implemented data analysis methodologies for biological fluid Mass Spectrometry
- Demonstrated adaptability and innovation in established pipelines
- Integrated machine learning to identify differentially expressed proteins
- Addressed challenges of the absence of ground truth effectively
- Communicating complex ideas to interdisciplinary team

October 2022 – May 2022 | **Student Research Assistant, Physics of Life, Dresden, DE**
- Enhance quantitative model through non-linear relationship analysis
- Generate databases tailored for non-linear regression models
- Benchmark machine learning models to glean insights from new databases
- Coordinating with an interdisciplinary team to achieve complex tasks

June 2020 – July 2019 | **Graduate Engineer Trainee, KHS GmbH, Nashik, India**
- Conducted process flow optimization to curtail product cost
- Achieved project goals by coordinating with a team of 5 experts from 4 departments

Education

January 2024 – October 2020 | **M.S Computational Modeling and Simulation, TU Dresden, DE**
- Mastered machine learning methodologies and their application in data analysis
- Applied numerical methods to solve differential equations and model physical phenomena
- Expertise in data visualization, statistical and stochastic modeling for robust data-driven insights
- Final Grade : 2.0

June 2019 – August 2015 | **B.Tech Mechanical Engineering, PDPU, Gandhinagar, IN**
- Applied analytics principles through optimization, statistics, and programming
- Utilized advanced mathematical concepts including calculus and tensor algebra
- Fostered application-oriented thinking in robotics and engineering applications
- Gained expertise in engineering fundamentals such as solid mechanics & thermal engineering
- Final grade CPI : 9.09 out of 10 (German grade equivalent : 1.46)

Projets

November 2023 – June 2023 | **Master's Thesis : Detecting patterns in 'omics data, Physics of Life, Dresden, DE**
- Applied dimensional reduction and clustering techniques to identify changing proteins
- Statistical tests to assess the significance of identified protein changes
- Analyzed data using Topological Data Analysis to reveal persistent patterns at various scales
- Considered biological significance in identifying changing proteins
- Grade : 1.7

March 2022 – November 2021 | **Research Project : Quantitative Modeling of protein sensitivity, Physics of Life, Dresden, DE**
- Developed a descriptive model linking mechanical stimuli to protein response
- Investigated predictive potential of the model using available data
- Established an automated ImageJ pipeline for image analysis validation
- Utilized public domain and collaborative experimental images for validation
- Grade : 1.3

March 2022 – November 2021 | **Bachelor's Thesis : Numerical Analysis of WAAM process, PDPU, Gandhinagar, IN**
- Conducted thermal modeling for wire arc additive manufacturing (WAAM) process
- Employed Ansys element birth-death technique for structural and thermal analysis of WAAM
- Utilized transient analysis to determine optimal engineering parameters
- Grade : 9.0 (max. 10.0)

Extra Curricular Projects

May 2024 – April 2024 | **World News Visualizer, Dresden, DE**
- Interactive World-News web page using web-scraping news articles
- Use of LLM to infer and summarize data from news headlines
- Automated workflow to access updates every day

August 2023 – July 2023 | **GeoViz Map Visualizer, Dresden, DE**
- Creates captivating urban map visualizations from coordinates
- Highlights city road networks, water bodies, and green areas
- Enhances visual appeal and clarity of geographical data

September 2022 – August 2021 | **Dynamic Stock Market Visualizer, Dresden, DE**
- Developed interactive stock tracking tool with integrated buy/sell signal feature
- Functionality includes real-time stock price monitoring and signal generation
- Implemented Golden Cross criteria for informed investment decision-making within the tool

Skills

Data Science	Statistics, Probability, Algebra, Calculus, Matrices, Numerical methods
Modeling	Time-series, Stochastic, Topological Data Analysis, Network modeling
Machine Learning	Supervised, Unsupervised learning, Dimensional Reduction Techniques, Neural Networks
Python	Pandas, NumPy, sci-kit learn, matplotlib, scipy, NetworkX, RIPSER, seaborn
Engineering	Thermal and Fluid Engineering, Structural, Kinetics & Dynamics of solids
Professional	MS Excel, Tableau, Git, MATLAB, Ansys-Thermal & Fluent, NX, Solidworks

Certificates

April 2024	Data Analysis with Python, freeCodeCamp
March 2020	MATLAB Programming for Numerical Computations, NPTEL
November 2019	Structural Dynamics - Single Degree of Freedom Systems, NPTEL
September 2018	Goethe-Zertifikat A1, Goethe Institut
April 2018	Advanced Fluid Mechanics, NPTEL
December 2017	NX Essentials, Siemens PLM Software

Languages

English	●●●●●
German	●●○○○

Hobbies

- Cycling
- Solving Puzzles