Hello
I'm PAUL DATTAM
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Location: Texas, USA

PROFILE OF RESEARCH

Having more than five years of applied physics and research experience in the field, the computational physicist is knowledgeable in the field of wave physics, thermodynamics, statistical mechanics, and numerical modeling. solid background in physical modelling with data, stochastic simulation and scientific computing. Another published scholar, who has contributed to Monte Carlo simulation, wave propagation, and thermodynamic systems. versed in physics, data science, and quantitative modeling in interdisciplinary contexts. seeking roles in data science, computational physics, remote research, or quantitative analysis.

INTERESTS IN RESEARCH

Statistical mechanics and computational physics • Thermodynamics The phenomenon of waves • Machine Learning in Science The use of numerical simulation The use of stochastic modeling • Modeling quantitative finance Analysis of Scientific Data.

LEARNING

Bachelor of physics (BSc) University of Texas in Austin, USA, 20142018.
Scholarly Literature Pertaining to This: Thermodynamics Mechanics of statistics Computational Physics Physics of Engineering Photonics and Optics Wave Motion and Acoustics Numerical Evaluation Classical mechanics Electromagnetism Physicists Mathematical Approaches.

RESEARCH EXPERIENCE

Since 2021, the International Applied Physics Research Consortium has a remote applied computational physicist.
Numerical simulations of statistical and thermodynamic systems were developed using high precision. Created Python stochastic and finite difference discretisations of particle systems and wave propagation. Conducted physical model convergence tests, stability tests and numerical validation. Applied knowledge-based approaches to analyse complex engineering and physical data. Collaborated with scientists of applied mathematics, engineering and physics globally.
Physics Research Associate (Remote) Physics Research Associate at Global Scientific & Engineering Solutions. 2019–2021 developed thermodynamics and Monte Carlo simulations, which were deterministic and statistical. Applied numerical techniques to the study of the behavior of optical and acoustic waves. Generated reproducible computational research and peer level scientific analysis. Promoted applied research in physical modeling and heat transfer-multidisciplinary studies.

PUBLISHMENTS

P. Dattam (2023). Engineering systems i.e. thermodynamic models are numerically justified. Computational physics journal, 472, 111642.
10.1016/j.jcp.2023.111642 is the doi

P. Dattam (2022). Acoustic Wave Propagation in Complex Media: A Computer Simulation. wave dynamics, 112, 102956.
10.1016/j.wavemoti.2022.102956 is the doi

Dattam, P. (2021). An Approach to the Modeling of Optical Interferences and Diffractors Numerically. Communications in Optics, 489, 126859.
10.1016/j.optcom.2021.126859 Dattam, P. (2020). Statistical Mechanics Monte Carlo Techniques. Statistical Mechanics Applications in Physica A, 560, 125084.
10.1016/j.physa.2020.125084 is the DOI.

PORTFOLIO ON PYTHON AND COMPUTING RESEARCH.
Thermodynamic Systems Simulator.

- Developed a mathematical model of equilibrium, energy equilibrium, and entropy.
- High-precision numerical validation was done with NumPy/SciPy.

Monte Carlo Statistical Mechanics Engine.

- The application of stochastic particle simulation was implemented and stability and convergence analyses was carried out.
- relevant applied probabilistic modeling used in systems of quantitative finance.

WavePropagation Simulation Framework.

- simulation of optical and acoustic waves of finite-difference in heterogeneous materials.
- created frequency response and spectral analysis.

Quantitative Modeling and Scientific Data Toolkit.

- Python modeling, statistical modeling and prediction simulation pipelines were built.
- practical techniques, which are applicable in quantitative finance and data science processes.

TECHNICAL ASPECTS
Python Scientific computing and programmer NumPy Python SciPy Python Pandas Matplotlib Jupyter MATLAB Git LaTeX.

Quantitative and Scientific Approaches Numerical Approaches Monte Carlo simulation Statistical Modeling • Enhancement • Random Mechanisms Analyzing data Machine Learning in Science.

Communication & Research Scientific Writing • Technical Records • Reproducibility of Research • Interpretation of Data Remote Cooperation.

PROFESSIONAL CERTIFICATION.

CPhys, or chartered physicist.
European physicist (EurPhys).
Member of Institute of physics (MInstP).

PROFESSIONAL AND ACADEMIC STRENGTHS.

Good publication level scientific writing and English (C1/C2).

advanced numerical testing and modelling.

interdisciplinary experience in quantitative modeling, data science and physics.

responsible distance scholar who has a reliable and high-speed internet connection.

RESEARCH AND CAREER GOALS

Seeking opportunities in remote work in field such as computational physics, scientific computing, data science or quantitative research where advanced scientific and quantitative problem solving can be enabled by good numerical modeling, statistical simulation and data-driven physics expertise.