Arijit Laik

Versatile Computational Geoscientist | Modeller

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About Me

I am a Geoscientist specializing in numerical and data modeling, simulation, analysis, and geospatial applications, adept in transforming complex data into actionable insights and thrive on tackling fresh challenges.

Proficient in translating complex models and datasets into deliverable insights and compelling visualizations.

Dedicated to challenges in data-driven decision-making in climate change, energy transition, and sustainability.

Experienced in leveraging diverse approaches for effective and collaborative problem-solving.

Eager to apply and gain technical acuity while being dedicated in contributing to impactful data-driven solutions.

Experience

Ph.D Long term tectonics and Geodynamic Modelling   02.09.2018 - 02.02.2024
Vu Amsterdam

Developed high-resolution 3D dynamic numerical models for whole mantle subduction and collision.

Created workflows with shell scripts for automated cloud storage and backup, and Python for analysis, visualization of large datasets.

Analyzed performance, benchmarked and optimized I/O operations for scaling simulations on multiple computing nodes in High Perfomance Computing Clusters (SurfSara's Snellius & Lisa).

Configured container environments (Docker, Singularity), debugged and maintained packages and modules, and documentation for workflows.

Teaching Assistant for Computational Modeling with Python Coursework in the Earth Sciences BSc Program

Consultant Freelance creative and science consultant for artists and performance makers   2020 -
Amsterdam

Intern Collection Processing and Interpretation of Subsurface Data, Reserve Estimation   *May - June, 2017*
ECL, India

Freelancer Web Developer, cloud deployments, Graphic Designer   *2013 - 2016*
Kolkata, India

Skills

Languages English (Working/Bilingual), Bengali (Native/Bilingual), Hindi (Fluent), Dutch (Beginner)

Domain Knowledge

Geoscience Fluid Dynamics (low Reynolds number), Numerical Modeling (FEM + PIC), Tectonics and Structural Geology, Geo-spatial Analysis, 3D Geological Modeling

Technical Simulation Design, Parallel Computing (MPI), FAIR Principles, Progressive Web Apps

Modeling Curve fitting, Time Series Forecasting (ARMA), Clustering (K-means, t-SNE), Classification (Random Forest, K-NN), Gaussian fitting

Analysis Regression Analysis (Linear, polynomial, logistic), dimensionality reduction (PCA), Inferential Statistics (Chi-square test, T-test, F-test), Log Transformation, Distribution Analysis

Technical Familiarity

- 🖥 Python, Julia, C/C++, R, Bash/Shell, JavaScript, NodeJS, HTML5, LaTeX
- 📊 Numpy, Scipy, Pandas, PETSc, HDF5, Numba, Scikit-Learn, Beautiful Soup
- 🟢 Seaborn, Matplotlib, Plotly, D3.js, Tableau, Paraview
- 🗄 Dask, Rclone, Google Drive API, SQL
- ☁ Docker, Singularity, Google Cloud Console
- 🗺 QGIS, Google Earth Engine, GlobalMapper, Gplates
- 🛠 Git, CI/CD, Jira, Slack

Education

M.Sc. Applied Geology | Numerical Modeling of Fold and Thrust belts, Geodynamics   *2016 - 2018*
University of Calcutta

B.Sc Geology (Hons.) with Mathematics, Physics, Environmental Sciences and Computer Applications   *2012 - 2015*
Presidency University, Kolkata

Publications

Laik, **A.**, Schellart, W. P., & Strak, V. Protracted continental subduction, indentation and collisional boundary migration coupled with adjacent oceanic slab-rollback and slab detachment in large-scale buoyancy-driven 3d whole-mantle scale numerical models of subduction-and-collision. *EGU General Assembly* 2023.

Laik, **A.**, Schellart, W. P., & Strak, V. Sustained indentation in 2-d models of continental collision involving whole mantle subduction. *Geophysical Journal International*, 232(1), 343–365.

Laik, **A.**, Schellart, W., & Strak, V. Convergence at continental collision zones: Insights from long-term 2d geodynamic models of buoyancy-driven subduction and collision. *EGU General Assembly Conference Abstracts*, EGU22–12441.

Laik, **A.**, Schellart, W. P., & Strak, V. Trench advance in collisional settings: Insights from large scale 2d and 3d models. *EGU General Assembly Conference Abstracts*, EGU21–7210.

Ghosh, S., Bose, S., Mandal, N., & **Laik**, **A.** Mid-crustal ramping of the main himalayan thrust in nepal to bhutan himalaya: New insights from analogue and numerical experiments. *Tectonophysics*, 782, 228425.

Beucher, R., Moresi, L., Giordani, J., Mansour, J., Sandiford, D., Farrington, R., Mondy, L., Mallard, C., Rey, P., Duclaux, G., Kaluza, O., **Laik**, **A.**, & Moron, S. Uwgeodynamics: A teaching and research tool for numerical geodynamic modelling. *Journal of Open Source Software*, 4(36), 1136.

Laik, **A.** Svgnet–structural geology nets in the modern web platform wulff net and schmidt net. *Annual General Meeting of the Geological Society of India*, 255.

Involvements

Outside academia, I engage in cross-disciplinary initiatives merging scientific inquiry with artistic exploration, alongside equity and inclusion efforts. I have coordinated in and consulted for performance art projects.

EDI Committee Member at Department of Earth Sciences, VU Amsterdam:
Spearheaded initiatives promoting equity, diversity, and inclusion by organizing and moderating sessions. (2022 - 2023)

Production Assistant at DUST and Current: A Space:
Collaborated with artists and academics on captivating creative projects, providing essential production support and assistance. (2018 - 2022)

Committee Member at De Feniks Student Housing:
Represented resident interests, addressed concerns with housing provider, and fostered community spirit through social events. (2020 - 2022)

Co-Creator of "Unphibian Localisation":
Conceptualized and executed thought-provoking performance at the intersection of art, science, and urban ecology. Amsterdam segment, Remote theatrical by Gessnerallee Zurich. (Sep-Oct, 2022)

Manager production and logistics for Blink Festival:
Orchestrated 24-hour festival celebrating independent performance art, demonstrating leadership and ensuring success. (Oct-Nov, 2022)

Performer and Consultant for "Saying what you mean will save the planet":
Bringing creative vision and technical expertise to the performance art graduation project. (July, 2023)

Culinarian with Passion for Culinary Experiences:
Crafted exquisite and delectable dishes for art events and collaborations, enhancing overall impact.

Chef for Somatic Labs : DAS Grduate School,
Amsterdam Hogeschool voor de Kunsten. (December, 2023)

Projects

Uwgeodynamics Collaborator in developing a teaching and research tool for numerical geodynamic modelling

SvgNet Implemented a responsive web app for generating structural geology plots (stereonets and eigenvector analysis).

SeDist: Developed a web app for sedimentary grain size analysis with interactive visualization and statistical tools.