Khurram Aslam, PhD

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PROFESSIONAL SUMMARY

- ✓ Three years of experience in the Oil Industry as a Geoscientist and Five years of experience as an Earth Science researcher.
- ✓ Collaborated with multiple institutions, industry professionals and researchers to build relationships to complete 9 projects of which also included a Machine-learning project.
- ✓ Experienced research professional with 3 peer referred publications and 2 funded grant totaling $50,000.
- ✓ Managed collaborative projects conducting Quality Assurance testing as a Geoscientist using Landmark Graphics Corporation (LGC) applications resulting in 900 case reports.
- ✓ Provided Geological and Geophysical (G&G) application software support for LGC applications.

EDUCATION

PhD in Geophysics (Memphis, TN, USA)   Expected **April 2019**
University of Memphis, Center for Earthquake Research and Information, Memphis, TN   GPA 3.94/4.0
Dissertation Title: Modeling spatial-temporal pattern of heterogeneous stress and strain accumulation due to earthquake rupture on geometrically complex faults.

Pre-PhD Course in Earth System physics (Trieste, Italy)   **August 2012**
International Center for Theoretical Physics. Trieste Italy   GPA 3.94/4.0
Dissertation Title: Modeling the effect of recurrence interval of an earthquake on pre-seismic phase of an earthquake.

Master of Science in Geophysics (Islamabad, Pakistan)   **August 2009**
Quaid- E- Azam university, Islamabad, Pakistan.   GPA 3.88/4.0
Dissertation Title: Structural and Sequence Stratigraphical Interpretation of Indus Offshore Area.

EXPERIENCE AND ACHEIVEMENTS

Graduate Research Assistant   **Sep 2014 – Date**
University of Memphis, (Center for Earthquake Research and Information), Memphis, TN
- Simulating large-scale 3D dynamic earthquake rupture of California region (article).
- Modeling spatial-temporal heterogeneous stress on geometrically complex rough fault (article).
- Modeling the effect of topography on ground motions in Christchurch area New Zealand. I developed a part of finite element method (FEM) program of 3D wave propagation in 'C' language (abstract).
- Estimating the seasonal variation in the seismic velocities in New Madrid region using ambient noise correlation technique of passive seismic data.
- Calculating the Q factor relationship for Bishkeek area using Lg coda waves from earthquake waveforms.
- Estimating the maximum possible magnitude of an induced earthquake in Oklahoma using neural network approach of Machine-learning.
- Coupling the physics of short-term (dynamic) and long-term (quasi-static) phase of an earthquake (project repository). I coupled two C++ codes together; the codes solve the wave equation (finite differences) and the momentum balance equation (FEM) in 3D (abstract).

Lecturer   **Sep 2010 – Aug 2014**
Department of EarthSciences, COMSATS University, Abbottabad, Pakistan
- Involved in teaching different geophysics courses (both Theory and Labs).
- Major courses included Earthquake seismology, geophysical data processing, GIS and remote sensing, seismic exploration methods, Signal processing.

Geoscientist   **Aug 2007 – Aug 2010**
LMK Resources, Islamabad, Pakistan
- Provided software support (data import export, workflow support, data loading).
- Conducted quality assurance for software tools (geophysical domain testing).
- Developed software workflow designs.
    - ❖ Software Tools included: OpenWorks, Seisworks, PetroWorks, DecisionSpace Geoscience, PowerView, AssetView, Geoprobe, Syntool, ZMAP plus, Stratworks, and Depth Team Express.

SKILLS

Technical skills
- Seismic interpretation tools (Seisworks, PowerView, DecisionSpace Desktop (DSD) series) (3 years).
- Machine Learning tools (Neural Networks, Random Forest, SVM etc.) (2+ years).
- Geographic Mapping tools: ArcGIS (8+ years), GMT (5+ years) and QGIS (1+ years).
- Finite element and Finite difference methods.
- Seismic Hazard Analysis.

Programming skills
- Scientific Computing: MATLAB (5+ years), Python (3+ years) and R (1 year).
- Unix shell scripting (5+ years) and experience with High performance Computing.
- C, C++ (3+ years), Fortran (5+ years) and Java (1 year).

Miscellaneous Computer skills
- Linux, OSX, Windows, Solaris, SEISAN, GLOBK/GAMIT, Openquake, Corel Draw, AutoCad, Docker, OpenWorks, SeisWorks, PetroWorks, Decision Space Geoscience (Power View, Asset View and Geo Probe), Syn Tool, Z-MAP Plus, StratWorks, Depth Team Express. (Linux and Solaris Platforms), Geographix, Surfer, Adobe Photoshop, Adobe Illustrator, InkScape, SAC, Eclipse, MS office packages, Latex.

Personal skills
- Geophysicist, Geoscientist, GG Quality assurance QA analyst, Geoscience software support, Machine learning, Data scientist, Project management, Seismic data processing, signal processing, Seismology, Seismic data interpretation, Sequence stratigraphy.

MEMBERSHIPS AND HONORS

- Student Member: Society of Exploration Geophysicist, American Geophysical Union and Seismological society of America, AAPG.
- Student Representative in academic program committee, Department of Earth Sciences, University of Memphis.
- Student Representative, ICTP, Italy (news archive).

JOURNAL PUBLICATIONS

1. Aslam, K. S., & Daub, E. G., (2018). Effect of fault roughness on aftershock distribution: Elastic off-fault material properties, Journal of Geophysical Research, doi: 10.1029/2018JB016214.
2. Harris et. al., (2018). A suite of exercises for verifying dynamic earthquake rupture codes. Seismological Research Letters, 89(3), 1146-1162. doi: 10.1785/0220170222.
3. Hussain, I., Shah, T., & Aslam, K., S., Graphical SAC analysis of S8 APA S-box. Adv Algebra 3.2 (2010): 57-62.

4. Aslam, K. S., & Daub, E. G., (In review, 2019). Effect of fault roughness on aftershock distribution: plastic off-fault material properties, Journal of Geophysical Research.
5. Liu, C., Aslam, K. S., & Daub E. G. , (2019, in preparation). Estimating seasonal seismic velocity variation in Mississippi embayment area using ambient noise correlations, Journal of Geophysical Research.
6. Aslam, K. S., & Taborda, R., (In preparation, 2018). 3D ground motion simulations of Christchurch area including the effect of topography
7. Aslam, K. S., & Daub, E. G., (In preparation, 2018). Modeling damage evolution in the near-fault region as a result of rupture on complex fault.

FUNDED RESEARCH PROJECTS

1. The influence of rheology on post-seismic and interseismic deformation on rough faults, funded by Southern California earthquake Center (SCEC ID: 18095).
2. Effect of fault roughness and associated inelastic deformation on postseismic and interseismic strain, funded by Southern California earthquake Center (SCEC ID: 17182).

CONFERENCE PRESENTATIONS

1. Aslam, K., & Daub, E. G. (2018, 08), Modeling damage evolution in the near-fault region as a result of rupture on complex fault. Poster Presentation at 2018 SCEC Annual Meeting, Palm Springs, CA.
2. Aslam, K., Daub E. G., and E. Choi, (2018, 12), Coupling long-term and short-term physics of an earthquake on complex fault. 2018 AGU Fall Meeting Abstracts, Washington.
3. Aslam, K., & Daub, E. G. (2017, 08), Modelling the spatio-temporal pattern of heterogeneous stresses and strain accumulation due to earthquake rupture on a geometrically complex fault. Poster Presentation at 2017 SCEC Annual Meeting, Palm Springs, CA.
4. Aslam, K., et al. (2017, 12), Tectonostratigraphy of the Passive Continental Margin Offshore Indus Pakistan. 2017 AGU Fall Meeting Abstracts. New Orleans, LA.
5. Aslam, K., and Daub, E. G. (2017, 12), Effect of fault roughness on aftershock distribution and post co-seismic strain accumulation. 2017 AGU Fall Meeting Abstracts, New Orleans, LA.
6. Aslam, K., and Daub, E. G. (2015, 09), Modeling the coupled interaction of fault systems. 2015 Eastern section-Seismological Society of America Meeting, Memphis, TN.
7. Yousaf, W., and Aslam, K., (2018, 12), Identification of Faults and Cracks in Ornamental Stone of Dolarite rocks in Mansehra Granite region using ground penetrating radar (GPR). 2018 AGU Fall Meeting Abstracts, Washington.
8. Liu, C., Aslam, K., and Daub, E.G., (2019,04), Estimating seasonal seismic velocity variation in Mississippi embayment area using ambient noise correlations. 2019 Annual SSA meeting, Seattle, Washington.
9. Aslam, K., Liu, C., and Langston, C., (2019,04), Estimating source directionality using ambient noise correlations of Mississippi embayment ambient noise data. 2019 Annual SSA meeting, Seattle, Washington.