

MUHAMMAD ASIF

Education & Other Details

Education

- **MS/MPhil** Computer Engineering
COMSATS Institute of Information Technology (CIIT),
Islamabad, Pakistan
Thesis: Comparing Contention Based Medium Access Control
(MAC) Protocols For Wireless Sensor Networks (WSN)
CGPA 3.80/4.0 (85.6%)
Sep, 2005 – Aug, 2007
- **BS (Hons)** Computer Science
University of Sindh,
Jamshoro, Pakistan
Project: MSN Chat Monitor (The Chat Sniffer)
CGPA 3.45/4.0 (76.6%)
Sep, 2000 – Aug, 2004
- **Intermediate** Pre Engineering (Math., Physics and Chemistry)
Board of Intermediate and Secondary Education (BISE),
Multan, Pakistan
A Grade (71.0%)
1997 – 1999
- **Matriculation** Science
Board of Intermediate and Secondary Education (BISE),
Multan, Pakistan
A+ Grade (80.47%)
1995 – 1997

Fields of Interest

- Dynamical Climate Modeling and Experimentation
- Numerical and Statistical Analysis and Mathematical Modelling
- High Performance Computing (HPC) and Cluster Computing
- Distributed and Parallel Processing/Programming

Technical Expertise

- Programming Languages: C, C++, FORTRAN, Python, R and Matlab
- Scripting Shells: C, Korn, SH and Bash
- Parallel Programming Paradigms and Techniques: IntelMPI, OpenMPI, MPICH and MVAPICH
- Regional Climate Modelling: RegCM, PRECIS and WRF
- Earth System Modelling: EC-Earth (IFS, NEMO, OASIS) and NEMO
- Experimentation Tools for Climate Modelling: Autosubmit and Rose/Cylc
- Data Visualization Tools and Techniques: GrADS, Ferret and NCL (NCAR Command Language), NetCDF, CDO, NCO, NCVIEW and GRIB_API
- Deployment of High Performance Computing Cluster by Using OSCAR and ROCKS
- Project tracking tools/systems: ProjectPlace, Redmine, GitHub, GitLab and Trello

Personal Details

Date of Birth 01/01/1982	Status Married (having two sons)
Nationality Pakistani	Health Excellent
Pakistani Identity	CNIC # 36601-1552873-9, Passport # AR1888732
Spanish/EU Identity	NIE # Y1059372-Y (valid until 18/06/2020)
UK Identity (no ILR yet)	BRP # RGX155546 (valid until 13/11/2019)
Driving Full UK Licence	Languages Punjabi, Urdu, English, Spanish

Achievements & Honours

- IIASA, Laxenburg - Austria: Young Scientist Summer Program (YSSP), 2009
Interim Report: A Virtualized SGE-based Computational Cluster For Heterogeneous Environments
- CIIT, Islamabad - Pakistan: Scholarship for MS/MPhil Degree Program, 2005 - 2007
Thesis: Comparing Contention Based Medium Access Control (MAC) Protocols For Wireless Sensor Networks (WSN)

Career History

Associate Software Developer for Ocean Modelling – 1st April, 2016 till-date - University of Plymouth Enterprise Limited (UoPEL), Plymouth University, Plymouth, Devon, PL4 8AA, United Kingdom

- Contributes to software development, implementation & support for the ocean models & related end user applications as part of the UAE Ocean Forecasting Centre
- Assists in the development & maintaining collaborations with external bodies in the supply & delivery of the service
- Assists in the development of processes, procedures & policies, that support strategic business needs, maintain legal compliance
- Researches, interprets & analyses complex data using a variety of systems
- Investigates & reports on key findings, to enable a timely resolution ensuring adherence to quality monitoring processes
- Proactively networks with customers, to engender the effective sharing of knowledge & influencing best practice, which creates a shared image of the service, contributes to the on-the-job training of customer staff
- Develops technical documentation for the software
- Assists in carrying out acceptance tests for the software products.

Software/Research Engineer for Earth System Modelling – 12th May, 2010 till 14th January, 2016 (**approx. 5 years and 8 months**) - Catalan Institute of Climate Sciences (IC3), Climate Forecasting Unit (CFU), Carrer Doctor Trueta 203 - 08005 Barcelona, Spain

- Deployment of **EC-Earth** (Earth System Model) and **NEMO** (Nucleus for European Modelling of the Ocean) at Various (available) Linux Clusters, HPC's and Supercomputers Around the Globe: **MareNostrum(Spain), Ithaca(Spain), HECToR(UK), ECMWF-C2A(UK), Lindgren(Sweden), Jaguar(USA), MareNostrum3(Spain), ARCHER(UK) and ECMWF-CCA(UK)**
- Managing Repository of Initial Conditions for EC-Earth and NEMO
- Focal Point for the Users for Performing Seasonal and Multiannual Forecasting Experiments
- Coordinate and Collaborate Technically with Other Partners Belong to EC-Earth Consortium
- Participation in Computing and Scientific Projects: **RES, QWeCI, CMIP5, IS-ENES, SPIESM, HiResClim, SPESICCF, SPECS, IS-ENES2, SPAITAC and HiResClim2.**

Scientific Officer/IT Engineer for Regional Climate Modelling – 7th May, 2007 till 31st March, 2010 (**approx. 2 years and 11 months**) – Global Change Impact Studies Centre (GCISC), NCP Complex, Quaid-i-Azam University Campus, Islamabad, Pakistan

- Deployment of Linux Cluster for **Regional Climate Models** (RCMs)
- Using RCMs for Down-scaling GCMs Output for **South-Asia** Region
- Participation in National & International Research Projects for Studying the **Climate Change and Impacts** on Regional Scale.

Publications

Georgy Shapiro, Fred Wobus, Vladimir Solovyev, Xavier Francis, Patrick Hyder, Feng Chen and **Muhammad Asif** (2017). **Cascading of high salinity bottom waters from the Arabian/Persian Gulf to the northern Arabian Sea.**

Geophysical Research Abstracts, Vol. 19, EGU2017-7366, 2017.

(<http://meetingorganizer.copernicus.org/EGU2017/EGU2017-7366.pdf>)

Carrassi A., Guemas V., Doblas-Reyes F.J., Volpi D., **Asif M.** (2016). **Sources of skill in near-term climate prediction. Part I: Generating initial conditions.**

Climate Dynamics 2016, doi:10.1007/s00382-016-3036-4.

(<https://link.springer.com/article/10.1007%2Fs00382-016-3036-4>)

Martin Ménégos, Francisco Doblas-Reyes, Virginie Guemas, **Muhammad Asif**, and Chloe Prodhomme (2016). **Volcanic forcing in decadal forecasts**. Geophysical Research Abstracts, Vol. 18, EGU2016-8041, 2016.
(<http://meetingorganizer.copernicus.org/EGU2016/EGU2016-8041.pdf>)

L. Batté, J. García-Serrano, V. Guemas, **M. Asif**, I. Andreu-Burillo and F.J. Doblas-Reyes (2014). **Seasonal re-forecasts of the winter NAO with EC-Earth**. WCRP Climate Blue Book 2014, Section-6 (Developments in global forecast models, case studies, predictability investigations, global ensemble, monthly and seasonal forecasting).
(https://www.wcrp-climate.org/WGNE/BlueBook/2014/individual-articles/06_Batt_Lauriane_seasonal_NAO_EC-Earth.pdf)

Asif, M., A. Cencerrado, O. Mula-Valls, D. Manubens, A. Cortés and F.J. Doblas-Reyes (2014). **Case study in large scale climate simulations: Optimizing the speedup/efficiency balance in supercomputing environments**. 14th International Conference on Computational Science and Its Applications, doi:10.1109/ICCSA.2014.57.
(<http://ieeexplore.ieee.org/xpl/articleDetails.jsp?reload=true&arnumber=6976699>)

Asif, M., A. Cencerrado, O. Mula-Valls, D. Manubens, F.J. Doblas-Reyes and A. Cortés (2014). **Impact of I/O and data management in ensemble large scale climate forecasting using EC-Earth3**. Procedia Computer Science, 29, 2370-2379, doi:10.1016/j.procs.2014.05.221.
(<http://www.sciencedirect.com/science/article/pii/S1877050914003986>)

Andreu-Burillo I., L. Batté, **M. Asif** and F.J. Doblas-Reyes (2014). **An enhanced analysis of increasing-resolution coupled seasonal prediction experiments with EC-EARTH3**. Geophysical Research Abstracts, Vol. 16, EGU2014-11734-2, 2014. (<http://meetingorganizer.copernicus.org/EGU2014/EGU2014-11734-2.pdf>)

Carrassi A., Weber R, Guemas, V., Doblas-Reyes F.J., **M. Asif**, Volpi D. (23/04/2014). **Full-field and anomaly initialization using a low-order climate model: a comparison and proposals for advanced formulations**. Non Linear Processes in Geophysics, npg-2013-75.
(<http://www.nonlin-processes-geophys.net/21/521/2014/npg-21-521-2014.html>)

Guemas V., F.J. Doblas-Reyes, I. Andreu-Burillo and **M. Asif** (7/04/2013). **Retrospective prediction of the global warming slowdown in the past decade**. *Nature Climate Change*, doi:10.1038/nclimate1863.
(<http://www.nature.com/nclimate/journal/vaop/ncurrent/full/nclimate1863.html>)

C. Johnson, A. Carter, I. Bethune, K. Statford, M. Alava, V. Cardoso, **M. Asif**, B. Schuberth and T. Weinzierl (2013). **PRACE DECI (Distributed European Computing Initiative) Minisymposium**. In P. Manninen and P. Öster (ed.), PARA 2012,, Volume 7782 of Lecture Notes in Computer Science, p. 43–60. Springer, 2013.
(https://link.springer.com/chapter/10.1007/978-3-642-36803-5_3)

J. Donners, C. Basu, A. McKinstry, **M. Asif**, A. Porter, E. Maisonnave, S. Valcke and U. Fladrich (2012). **Performance Analysis of EC-EARTH 3.1**, PRACE Whitepaper, 2012.
(http://www.prace-ri.eu/IMG/pdf/Performance_Analysis_of_EC-EARTH_3-1-2.pdf)

Activities Attended (Workshops, Conferences, Meetings, Roundtables and Trainings etc)

"UAE-Ocean project meeting" at Met Office, Exeter, United Kingdom, 25th September 2018, 7th February 2018, 10th January 2018, 13th October 2017, 15th June 2017, 10th January 2017

"International meeting with EC-Earth contributors/users" at Lund, Sweden, 29th – 30th September 2014

"Discussion on how to use Autosubmit with ARPEGE/NEMO" at Centre Européen de Recherche et Formation Avancée en Calcul Scientifique (CERFACS), Toulouse, France, 12th February 2014

"International meeting with EC-Earth contributors/users" at European Centre for Medium-Range Weather Forecasts (ECMWF), Reading, United Kingdom, 3rd – 4th February 2014

"International meeting with EC-Earth contributors/users" at Instituto Português do Mar e da Atmosfera (IPMA), Lisbon, Portugal, 16th – 17th April 2013

"Seasonal to Decadal Forecast towards Climate Services: Joint Kickoff Meetings for ECOMS, EUPORIAS, NAACLIM and SPECS" at Barcelona, Spain, 6th – 9th September, 2012

"PARA 2012: Workshop on the State-of-the-Art in Scientific and Parallel Computing" at Helsinki, Finland, 10th – 13th June, 2012

"International meeting with EC-Earth contributors/users" at European Centre for Medium-Range Weather Forecasts (ECMWF), Reading, United Kingdom, 30th – 31st May 2012

"Visit to the Swedish Meteorological and Hydrological Institute (SMHI)" at Norrköping, Sweden, 5th – 10th February 2012

"PRACE Tier-1 Workshop 2011" at Stichting Academisch Rekencentrum Amsterdam (SARA), Amsterdam, Netherlands, 29th - 30th November 2011

"International meeting with EC-Earth contributors/users" at European Centre for Medium-Range Weather Forecasts (ECMWF) at Reading, United Kingdom, 16th – 19th January 2011

"IS-ENES/PRACE meeting" at Université Pierre et Marie CURIE (UPMC), Paris, France, 30th November – 1st December 2010

"14th Workshop on the Use of High Performance Computing in Meteorology" at European Centre for Medium-Range Weather Forecasts (ECMWF) at Reading, United Kingdom, 1st – 5th November 2010

"PRACE Autumn School 2010" at Barcelona Supercomputing Centre (BSC), Barcelona, Spain, 25th – 29th October 2010

"Barcelona Multicore Workshop (BMW) 2010" at Barcelona Supercomputing Centre (BSC), Barcelona, Spain, 21st – 22nd October 2010

"Programming Models (STARs)" at Barcelona Supercomputing Centre (BSC), Barcelona, Spain, 20th – 21st September 2010

"RES, 3rd User's Conference (2010)" at Universidad de Zaragoza, Zaragoza, Spain, 1st July 2010

"International meeting with EC-Earth contributors/users" at Barcelona Supercomputing Centre (BSC), Barcelona, Spain, 31st May – 1st June 2010

"IS-ENES first General Assembly" at Barcelona Supercomputing Centre (BSC), Barcelona, Spain, 26th – 28th May 2010

"Young Scientists Summer Program (YSSP)" at International Institute for Applied System Analysis (IIASA), Laxenburg, Austria, 1st June – 31st August 2009 (3-Months)

"4th ICTP Workshop on the Theory and Use of Regional Climate Models" at The Abdus Salam International Centre for Theoretical Physics (ICTP), Trieste, Italy, 3rd – 14th March 2008

Hands on Workshop on "How to Build and Program Supercomputers" at National University of Sciences & Technology (NUST), Rawalpindi, Pakistan, 21st – 22nd January 2008