Shahriyar Ahmadigol

Contact Information

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Research Interests

Atmospheric chemistry, Chemical transport modeling, Data assimilation, Climate change, Health and economic impacts of air pollution, Artificial intelligence, Machine learning

Education

M.S. in Environmental Engineering - Air Pollution, University of Tehran, Tehran, Iran, September 2017 (GPA: 17.53/20)

Selected courses: engineering mathematics (18/20), air pollution (17.75/20), industrial ventilation (18.4/20), air pollution modeling (16.7/20), advanced air pollution modeling (18.3/20), measurement and evaluation of air pollutants (19/20), atmospheric aerosols (19/20)

Supervisors: Prof. Khosro Ashrafi, Prof. Majid Shafiepour Motlagh
Thesis: Assessing the influence of initial and boundary conditions on CMAQ modeling results over Tehran

B.S. in Civil Engineering, University of Sistan and Baluchestan, Zahedan, Iran, September 2014 (GPA: 15.44/20)

Selected courses: computer science and programming (17/20), probability and Statistics in Engineering (17/20), numerical calculations (17.25/20)

Diploma in Mathematics and physics, NODET[1], Zahedan, Iran, September 2009

Honors and Awards

Semi finalist in the national **Astronomy Olympiad**, Iran, 2008
Ranked 3^{rd} in the national competition for developing astronomy websites and blogs, funded and supported by Iranian Space Agency, Iran, 2006

Computer Skills

Programming: **Python**(Pandas, NumPy, Plotly, Matplotlib, SQLAlchemy, Django, Flask, TensorFlow, PyTorch, Keras, OpenCV, ...), **R**(tidyverse, dplyr, ggplot2, parallel, httr, ...), JavaScript(jquery, Ajax, Node.js, React, JSON, GeoJSON), database(MongoDB, MySQL, SQLite), **Fortran**, Linux(bash and C shell), MATLAB, PHP

Modeling: CMAQ, WRF, SMOKE, FLEXPART, HYSPLIT, AERMOD, SUMO, MATSim

Software: NCL, Panoply, VERDI, ArcGIS

Editing: LaTeX, Microsoft Office

Notable Projects

Developing a data visualizer | spring 2020

- a state-of-the-art web based CALPUFF output visualizer using Python and javascript
Advisor: Prof. Khsoro Ashrafi

Weather simulation focusing on the coastal and offshore regions | winter 2020

- wind and temperature simulation around an offshore oil platform using WRF
- analyzing WRF outputs using R
Advisor: Prof. Khsoro Ashrafi

Traffic simulation to estimate emission of moving sources | spring 2019

- Traffic simulation and emission estimation using SUMO
- developing a simple nagel-schreckenberg model to simulate traffic using Python

[1] National Organization for Development of Exceptional Talents

- analyzing and visualizing outputs using Python and R
Advisors: Prof. Khsoro Ashrafi and Prof. Majid Shafiepour Motlagh

Air pollution modeling | winter 2017

- modeling air pollution using CMAQ
- weather simulation using WRF
- preparing emission inventories using SMOKE, spatial allocator and ArcGIS
- visualizing and analyzing modeling results using MATLAB, R, Panoply, VERDI, NCL and ArcGIS
Advisors: Prof. Khsoro Ashrafi and Prof. Majid Shafiepour Motlagh

CFD modeling | fall 2015

- a CFD model to solve hyperbolic PDEs using FORTRAN
Advisor: Prof. Khsoro Ashrafi

Gaussian Air Pollution Dispersion Model | spring 2015

- a model to estimate concentration of pollution downwind based on Gaussian plume dispersion model using FORTRAN
Advisor: Prof. Khsoro Ashrafi

Work Experiences

Air Pollution Specialist | 08/2019 - Present

VFERI[2], College of Engineering, University of Tehran
- Collaborating with industry divisions
- Developing industrial softwares
- Integrating output data sets from atmospheric models with geospatial data sets

Linux System Administrator | 10/2018 - Present

School of Environment, College of Engineering, University of Tehran
- Assuring the operational integrity and connectivity of server
- Deploying integrated solutions to solve needs and requests of Graduate students
- Analyzing system logs and identifying potential issues

Air Pollution Specialist | 10/2018 - Present

AQML[3], College of Engineering, University of Tehran
- Running atmospheric CTMs
- Meteorology and air quality simulation
- Programming and developing environmental softwares

Publications

[1] T. Alisoltani, M. Shafiepour Motlagh, K. Ashrafi, **S. Ahmadigol** "Modeling and Investigating the Effect of Speed Changes Due to Traffic Accidents on Traffic and Emission of Moving Sources in Tehran, Case Study: Yadegar Imam Highway" *6th National Conference on Applied Research in Civil Engineering, Architecture and Urban Management, Iran, June 2019.*

[2] T. Alisoltani, M. Shafiepour Motlagh, K. Ashrafi, **S. Ahmadigol** "Investigating the effectiveness of Nasr underpass on traffic and air pollution" *2nd International Conference on Civil Engineering, Architecture and Urban Management, Iran, August 2019.*

References

Prof. Khosro Ashrafi: Associate Professor at the University of Tehran, Iran
Email: khashrafi@ut.ac.ir
Prof. Majid Shafiepour Motlagh: Assistant Professor at the University of Tehran, Iran
Email: shafiepour@ut.ac.ir

[2]Vehicle, Fuel and Environment Research Institute, College of Engineering, University of Tehran
[3]Air quality modeling Lab, School of Environment, College of Engineering, University of Tehran