

Matlab and its Applications in Geoinformatics & Computational Intelligence

Date: 7. May- 9. May 2018

Time: 9.30 am -1.00 pm

Location: Building **20.40**, GIK PC-Pool (Room 039)

Lecturer: Prof. Dr. Mulhim al Doori (AUD, Dubai)

Credits: 1

Contents

MATLAB provides an interactive environment for numerical computation, visualization, and programming. This fourth generation programming language comprises of built-in math functions and tool boxes which enable the user to explore multiple approaches and reach a solution with relative ease in comparison to other programming languages. It enables the user to analyze data, develop algorithms and create models and applications. MATLAB can be used for a range of applications, including signal processing and communications, image and video processing, control systems, test and measurement, computational finance and geodesy. More than a million engineers and scientists in industry and academia use MATLAB, the language of technical computing.

Course topics

Session 1 - Introduction

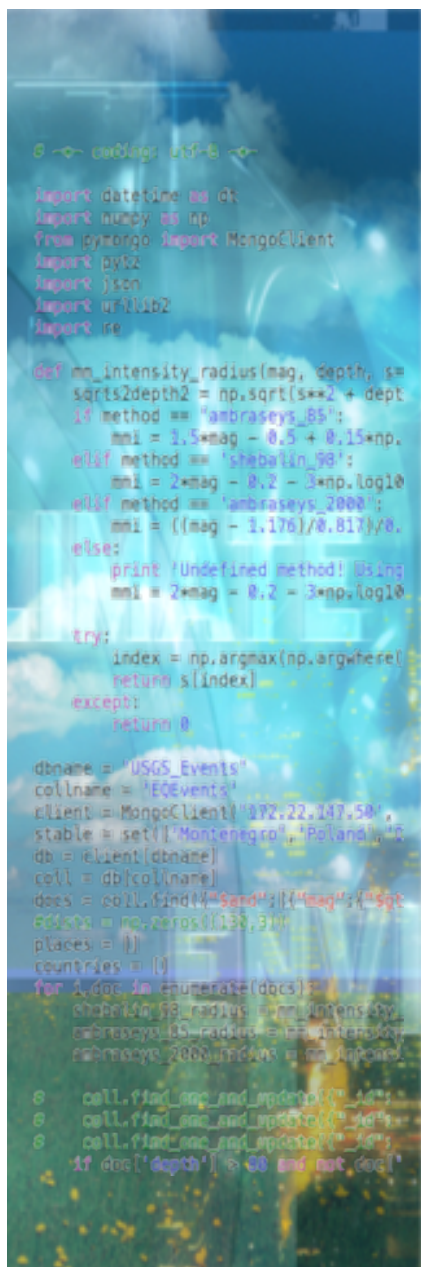
- Analysis and Visualisation with Vectors and Matrices
- Debugging, Functions and Problem Solving
- Logical Operators, Conditional Statements and Loops
- Strings and Files

Session 2 – Matlab in Geoinformatics

- Digital Image Processing and Graphics Tools
- Geoinformatics Tools
- Geographic Data Import & Export
- 2D & 3D Map Displays
- Mapping Toolbox

Session 3 - Machine Learning in Matlab

- Classification and regression
- Artificial Neural Networks Tool
- Fuzzy Logic tools
- Genetic Algorithms Tools



```

6 -> (ctrl) ctrl-B ->
import datetime as dt
import numpy as np
from pymongo import MongoClient
import pytz
import json
import urllib2
import re

def mni_intensity_radius(mag, depth, s=
sqrt(2)*depth2 = np.sqrt(s**2 + dept
if method == 'ambraseys_85':
    mni = 1.5*mag - 0.5 + 0.15*np.
elif method == 'stebalin_98':
    mni = 2*mag - 0.2 - 3*np.log10
elif method == 'ambraseys_2000':
    mni = ((mag - 1.176)/0.817)/0.
else:
    print 'Undefined method! Using
    mni = 2*mag - 0.2 - 3*np.log10

try:
    index = np.argmax(np.argwhere(
return s[index]
except:
    return 0

dbname = 'USGS_Events'
collname = 'EQEvents'
client = MongoClient('192.22.147.50')
stable = set(['Montenegro', 'Poland'])
db = client[dbname]
coll = db[collname]
docs = coll.find({'$and': [{'mag': {'$gt
events = np.zeros((100, 3))
places = {}
countries = {}
for i, doc in enumerate(docs):
    chobolov_85_radius = mni_intensity_
ambraseys_85_radius = mni_intensity_
ambraseys_2000_radius = mni_intensity_

6 cell.find_one_and_update({'_id':
6 cell.find_one_and_update({'_id':
6 cell.find_one_and_update({'_id':
if doc['depth'] > 60 and not doc[

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About the Lecturer

Prof. AI Doori's personal and collaborative research mainly centers round developing and applying novel cognitive, computational intelligence and machine learning techniques to a range of complex real-world and multi-model application areas. More generally, he is interested in novel interdisciplinary research for mathematical modeling, analysis and control of complex systems — both in theory and applications.

Registration

Please register via [online form](#).

```

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