

Week1 - Data
and Code

Week1 - Data and Code

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and Code

- **Syllabus**
- **Book**
- **Data**
- **Code**
- **New Accounts**

Syllabus

Week1 – Data
and Code

Software Tools for Earth & Environmental Sciences – 2019 Fall Term (16 Sept-27 Dec, Total : 15 Week)

<u>1st Week – 20 Sept</u> Data and Code <ul style="list-style-type: none">• Syllabus• Data• Coding• New Accounts	<u>2nd Week – 27 Sept</u> Linux and Python <ul style="list-style-type: none">• Terminal• Script and vi Editor• Anaconda-Jupyter Python	<u>3rd Week – 4 Oct</u> Data Types, Download and NCL <ul style="list-style-type: none">• Data Types• Data Download• NCL	<u>4th Week – 11 Oct</u> Introduction to R <ul style="list-style-type: none">• Getting Started• Preview of Course• Introduction to R
<u>5th Week – 18 Oct</u> R, The Language – Part 1 <ul style="list-style-type: none">• Class• Types of Variables• Vectors	<u>6th Week – 25 Oct</u> R, The Language – Part 2 <ul style="list-style-type: none">• Matrices and Arrays• Strings• Factors	<u>7th Week – 1 Nov</u> R, The Language – Part 3 <ul style="list-style-type: none">• List• Data Frames• Midterm Project	<u>8th Week – 8 Nov</u> ITU Fall-Term Break (no class)
<u>9th Week – 15 Nov</u> R Programming – Part 1 <ul style="list-style-type: none">• Calling Function• Conditional statements	<u>10th Week – 22 Nov</u> R Programming – Part 2 <ul style="list-style-type: none">• Loops• Other Control Flow Mechanism	<u>11th Week – 29 Nov</u> R, Data Import and Plot <ul style="list-style-type: none">• Reading and Writing Data• Basic Plotting - Graphics	<u>12th Week – 6 Dec</u> R, Statistics <ul style="list-style-type: none">• Elementary Statistics• Basic Data Visualization
<u>13th Week – 13 Dec</u> R, Probability <ul style="list-style-type: none">• Elementary Probability• Probability Distributions	<u>14th Week – 20 Dec</u> R, Advance <ul style="list-style-type: none">• Data Analysis• readr, dplyr, tidyr• ggplot2, lattice	<u>15th Week – 27 Dec</u> R - Final Project Workshop	

Figure 1: Syllabus

Book

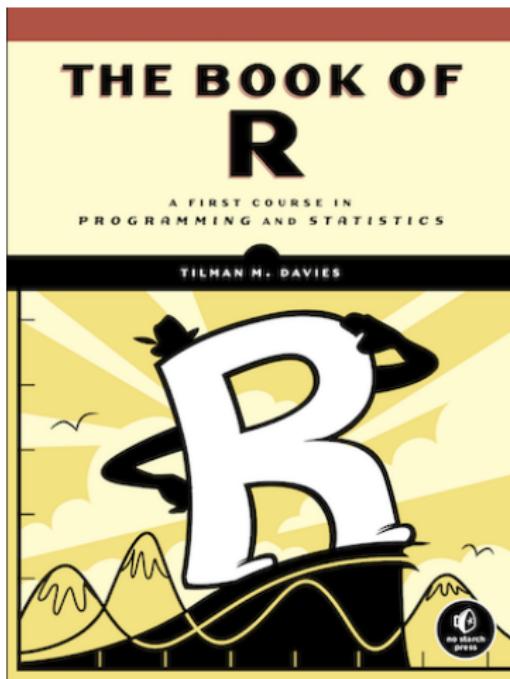


Figure 2: The Book of R

Data

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and Code

- What is the Data
- Data Collection and Production
- Data Types, Formats and Source
- Popular Terms About Data
- Obtain and Get the Data

What is the Data

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Data Collection and Production

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Data Types, Formats and Source

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and Code

Popular Terms About Data

- Data Science
- Data Analysis
- Big Data
- Data Mining
- Data Assimilation and Manipulation

Data Science

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Data Analysis

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Big Data

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Data Mining

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Data Assimilation and Manipulation

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Obtain and Get the Data

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Code

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- Operational Systems
- Programming Languages
- Fields of Programming
- Popular Terms About Programming
- Interpretation and Visualization
- Algorithm, Simulation and Modeling

Operational Systems

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- Microsoft Windows
- Unix
- Apple Macintosh OS
- Linux OS

Programming Languages

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- C
- Fortran
- JavaScript
- Python
- R
- NCL

Fields of Programming

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Popular Terms About Programming

- Artifical Intelligent
- Machine Learning
- Deep Learning
- Internet of Things

NEW ACCOUNTS

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- Github, Researchgate, DOI Code, ORCID, Overleaf(LaTeX)
- Mendeley, Panoply, Sublime Text, Filezilla
- ArcGIS, QGIS
- Anaconda, Jupyter, Cygwin, R Studio, NCL
- Meted, Coursera, Udemy, Datacamp, Edx, Khanacademy
- Stackoverflow, Wolfram-alpha, Dropbox, Wetransfer

Github

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The screenshot shows the GitHub homepage with the following visible elements:

- Header:** Search bar, Pull requests, Issues, Marketplace, Explore.
- Left Sidebar:** Repositories section with a "New" button and a "Find a repository..." search input. It lists repositories owned by "emirtoker": Software_Tools_R_Github, HSK531E_Hydro_Paper_Time, Pantanal_Project, HSK_531E_SM_Moselle_Mask, and emirtoker/ysb80te.
- Middle Content:** A list of recent forked repositories:
 - kadirayk forked kadirayk/ConfigSpace from automl/ConfigSpace 4 hours ago. Python, 70 stars, updated Sep 14.
 - uturuncoglu forked uturuncoglu/manage_externals from ESMCI/manage_externals 2 days ago. Python, 5 stars, updated Aug 30.
 - uturuncoglu forked uturuncoglu/UFS_UTILS from NOAA-EMC/UFS_UTILS 9 days ago. Fortran, 1 star, updated Sep 9.
 - isezen started following loftytopping 18 days ago. Following link to David Topping's profile.
- Right Sidebar:**
 - Catch Universe early bird pricing:** Join a community connected by code at GitHub Universe in San Francisco. Save \$300 with early bird ticket pricing—here for a limited time.
 - GitHub Sponsors Matching Fund:** Ready to support open source? GitHub will match your contribution to developers during their first year in GitHub Sponsors.
 - Welcome to the new dashboard. Get closer to the stuff you care about most.**
 - Explore repositories:**
 - domoticz/domoticz: Open source Home Automation System. 2.2k stars.
 - ccxt/ccxt: A JavaScript / Python / PHP cryptocurrency trading API with support for more than 120 bitcoin/altcoin exchanges. 12.1k stars.
 - jwilm/alacritty: A cross-platform, GPU-accelerated terminal emulator.

Figure 3:

LINK

Researchgate

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The screenshot shows the Researchgate homepage. At the top, there is a navigation bar with a green 'R' logo, 'Home', 'Questions', 'Jobs', and a search bar containing 'Search for researchers, publications, and more'. To the right of the search bar are icons for messaging, notifications, and user profile, along with a blue 'Add new' button. A red notification bubble with the number '1' is visible on the user profile icon.

The main content area features a large banner with the text 'Emir, make your work more discoverable' and 'Sort your research into projects to make it easier for others to find.' Below this is a 'Start sorting' button. To the right of the banner is a section titled 'Do you have a research question?' with a sub-section for asking questions in Q&A. There is also a 'Ask me later' button.

Below the banner is a 'Suggested for you' section featuring an article titled 'The Operational Recognition of Supercell Thunderstorm Environments and Storm Structures' from September 1994. The article has 'Article' and 'Full-text available' buttons, and statistics showing 206 Reads and 173 Citations. Below the article are buttons for 'View', 'Download', 'Recommend', 'Follow', and 'Share'.

To the right of the suggested article is a sidebar titled 'Jobs you may be interested in' with a 'View more' link. It lists three job openings:

- POSTDOCTORAL SCHOLARS / CALL FOR NOMINATIONS** at Zuckerman Institute, Tel Aviv, Israel.
- Clean lab technician/manager** at The Czech Academy of Sciences, Prague, Czechia.
- Senior Assistant position in Experimental Mineral Physics** at ETH Zurich, Zürich, Switzerland.

Figure 4:

LINK

DOI Code - (digital object identifier) - Zenodo

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The screenshot shows the Zenodo homepage with a blue header bar. The header includes the Zenodo logo, a search bar, an upload button, and a communities link. A user account dropdown is also present. Below the header, there's a section for "Recent uploads". One item listed is "Analysis of correlation-based biomolecular networks from different omics data by fitting stochastic block models" uploaded on August 8, 2019. It has three versions, with the latest being "Open Access". Another item listed is "OpenScienceMOOC/Module-5-Open-Research-Software-and-Open-Source: 3.1" uploaded on August 6, 2019, also in "Open Access". To the right of the main content area, there are several callout boxes: one about Zenodo supporting usage statistics with a chart icon; another about using GitHub with a GitHub logo; and one about Zenodo in a nutshell with a bulleted list.

Recent uploads

August 8, 2019 (v3) Dataset Open Access

Analysis of correlation-based biomolecular networks from different omics data by fitting stochastic block models

View

August 6, 2019 (v3.1) Software Open Access

OpenScienceMOOC/Module-5-Open-Research-Software-and-Open-Source: 3.1

View

Zenodo now supports usage statistics!

Read more about it, in our newest blog post.

Using GitHub?

Check out our GitHub integration. Software Preservation Made Simple!

Zenodo in a nutshell

- **Research. Shared.** – all research outputs from across all fields of research are welcome! Sciences and Humanities, really!
- **Citable. Discoverable.** – uploads gets a Digital Object Identifier

Figure 5:

LINK

ORCID

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The screenshot shows the ORCID homepage. At the top is a navigation bar with a search field, user icon, settings gear, and language selection (English). Below the header is a main menu with tabs: FOR RESEARCHERS (highlighted in green), FOR ORGANIZATIONS, ABOUT, HELP, and SIGN OUT. Under the FOR RESEARCHERS tab are links for MY ORCID RECORD, INBOX, ACCOUNT SETTINGS, DEVELOPER TOOLS, and LEARN MORE. A counter at the bottom of the menu bar states "7,132,113 ORCID IDs and counting. See more...". The main content area features a large green arrow pointing down to a large "ID" graphic. The text "DISTINGUISH YOURSELF IN THREE EASY STEPS" is displayed above two numbered steps: "1 REGISTER" and "2 ADD YOUR INFO". Step 1 includes a link to register and a note about a 30-second registration time. Step 2 includes a link to add professional info and a note about linking to Scopus or ResearcherID. A "LATEST NEWS" section on the right lists an update from September 13, 2019, and a news item from September 5, 2019, both related to ORCID in Europe, the Middle East, and Africa.

Search English

FOR RESEARCHERS FOR ORGANIZATIONS ABOUT HELP SIGN OUT

MY ORCID RECORD INBOX ACCOUNT SETTINGS DEVELOPER TOOLS LEARN MORE

7,132,113 ORCID IDs and counting. See more...

DISTINGUISH YOURSELF IN THREE EASY STEPS

ORCID provides a persistent digital identifier that distinguishes you from every other researcher and, through integration in key research workflows such as manuscript and grant submission, supports automated linkages between you and your professional activities ensuring that your work is recognized. [Find out more](#)

1 REGISTER Get your unique ORCID identifier Register now!
Registration takes 30 seconds.

2 ADD YOUR INFO Enhance your ORCID record with your professional information and link to your other identifiers (such as Scopus or ResearcherID or LinkedIn).

INCLUDE YOUR ID Include your ORCID identifier on your Webpage.

LATEST NEWS

Fri, 13 Sep 2019 ORCID in Europe, the Middle East, and Africa- An Update

Thu, 05 Sep 2019 Reports and ORCID

Yardim

Figure 6:

LINK

Overleaf (LaTeX)

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The screenshot shows the Overleaf LaTeX editor interface. At the top, there's a navigation bar with links for Features & Benefits, Templates, Plans & Pricing, Help, Register, and Log In. The main title "LaTeX, Evolved" is prominently displayed, followed by the subtitle "The easy to use, online, collaborative LaTeX editor".

The left sidebar shows a file tree with "main.tex" selected. The right panel displays the LaTeX code for "main.tex" and the resulting PDF output.

Code (Source):

```
1 \documentclass{article}
2 \usepackage{utf8}(inputenc)
3
4 \title{The Universe}
5 \author{}
6 \date{May 2019}
7
8 \usepackage{authblk}
9 \usepackage{graphics}
10
11 \begin{document}
12
13 \maketitle
14
15 \section{Introduction}
16 There is a theory which states that if ever anyone discovers exactly what the Universe is for and why it is here, it will instantly disappear and be replaced by something even more bizarre and inexplicable.
17 There is another theory which states that this has already happened.
```

Output (Rich Text):

The Universe

Mar 2019

1 Introduction

There is a theory which states that if ever anyone discovers exactly what the Universe is for and why it is here, it will instantly disappear and be replaced by something even more bizarre and inexplicable. There is another theory which states that this has already happened.

Figure 7:

LINK

Mendeley

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The screenshot shows the Mendeley desktop application interface. On the left, there's a sidebar with sections for 'MY LIBRARY' (Recent, Recently Added, Needs Review, Unsorted, and specific document types like ESA_Description_REF and MAKALE), 'GROUPS' (Create Group...), and 'TRASH' (All Deleted Documents). A 'Filter by Authors' dropdown is open, showing names like All, Abrahamyan, R, Adams, Joan Duncan, Adams-selin, Rebecca, Adams-Selin, Rebecca D., Aerological, Central, Aghakouchak, Amir, Aghniori, G., Akbayir, Ibrahim, Akkoyunku, B O, Alz-Kurikka, J, Alapati, Kiran, Alberca, Clement, Wagner, Wolfgang, Gruber, Alexander, and Dorigo, W.. The main area displays a list of 'All Documents' with columns for Title, Year, Published In, and Added date. One entry is highlighted: 'WindSat global soil moisture retrieval and validation' by L. Li, P. Gaiser, B. Gao, et al., published in IEEE Transactions on Geoscience and Remote Sensing in 2010. The right side of the interface includes tabs for Details, Notes, and Contents, and a detailed view of the selected paper's metadata and abstract.

All Documents

Authors	Title	Year	Published In	Added
Kerr, Yann H.; Waldteufel, Philippe; Wigneron, Jean-Philippe; Naaim, Vahid; Scipal, Klemens; Wagner, Wolfgang; Gruber, A.; Scanlon, T.; ...	The SMOS L: New tool for monitoring key elements of the global water cycle from operational meteorological satellites	2010	Proceedings of the IEEE	Sep 4
Dorigo, W.; Wagner, W.; Gruber, A.; Scanlon, T.; ...	ESA Soil Moisture Climate Change Initiative (SMCCI): Version 04.4 data collection <Gcos-138 (1).Pdf>	2019	Centre for Environmental Monitoring, Canada	Sep 4
Dorigo, W.; Gruber, A.; Scanlon, T.; Hahn, S.; Klaver, M.; ...	ESA Soil Moisture Climate Change Initiative (SMCCI): Version 04.4 data collection <Gcos-138 (1).Pdf>	2019	Centre for Environmental Monitoring, Canada	Sep 4
Dorigo, W.; Gruber, A.; Scanlon, T.; Hahn, S.; Klaver, M.; ...	ESA Soil Moisture Climate Change Initiative (SMCCI): Version 04.4 data collection <Gcos-138 (1).Pdf>	2010	Centre for Environmental Monitoring, Canada	Sep 4
Wagner, W.; Dorigo, Wouter; De Jeu, Richard; Parinussa, Robert M.; Holmes, Thomas R. H.; Dorigo, W.; ...	FUSION of ACTIVE and PASSIVE MICROWAVE OBSERVATIONS to CREATE AN ESSENTIAL CLIMATE VARIABLE	2012	ISPRS Annals of the Photogrammetry, Remote Sensing and Spatial Information Sciences	Sep 4
Parinussa, Robert M.; Holmes, Thomas R. H.; Dorigo, W.; ...	Soil moisture retrievals from the WindSat spaceborne polarimetric microwave radiometer	2012	IEEE Transactions on Geoscience and Remote Sensing	Sep 4
Li, Li; Gaiser, Peter W.; Gao, Bo; Cai, Bevilacqua, ...	WindSat global soil moisture retrieval and validation	2010	IEEE Transactions on Geoscience and Remote Sensing	Sep 4
Wagner, Wolfgang; Hann, Sebastian; Kidd, Richard; ...	The ASCAT soil moisture product: A review of its specifications, validation results, and emerging applications	2013	Meteorologische Zeitschrift	Sep 4
Wagner, Wolfgang; Brocca, Luca; Naaim, Vahid; Scipal, Klemens; ...	Clarifications on the "comparison between SMOS, VTPR, ASCAT, and ECMWF Soil Moisture Product"	2014	IEEE Transactions on Geoscience and Remote Sensing	Sep 4
Parinussa, Robert M.; Holmes, Thomas R. H.; ...	The global soil moisture archive 1992–2000 from ERS scatterometer data: First results	2002	International Journal of Remote Sensing	Sep 4
Parinussa, Robert M.; Holmes, Thomas R. H.; ...	A preliminary study toward consistent soil moisture retrievals from AMSR2	2015	Journal of Hydrology	Sep 4
Gruber, Alexander; Dorigo, Wouter Arnoud; ...	Triple Collocation-Based Merging of Satellite Soil Moisture Retrievals	2017	IEEE Transactions on Geoscience and Remote Sensing	Sep 4
Owe, Menfried; de Jeu, Richard; Holmes, Thomas R. H.; ...	Multisensor historical climatology of satellite-derived global land surface moisture	2008	Journal of Geophysical Research	Sep 4
Gruber, Alexander; ...	Evolution of the ESA CCI Soil Moisture climate	2019	Earth System	Sep 4

Search: ...

Details Notes Contents

Type: Journal Article

WindSat global soil moisture retrieval and validation

Authors: L. Li, P. Gaiser, B. Gao, et al.

View research catalog entry for this paper

Journal: IEEE Transactions on Geoscience and Remote Sensing

Year: 2010

Volume: 48

Issue: 8

Pages: 2224-2241

Abstract:

A physically based six-channel land algorithm is developed to simultaneously retrieve global soil moisture (SM), vegetation water content (VWC), and land surface temperature. The algorithm is based on the WindSat passive microwave and uses dual-polarization WindSat passive microwave data at 10, 18.7, and 37 GHz. The global retrievals are validated at multispatial and multitemporal scales against independent in situ remote data, precipitation patterns, and Advanced Very High Resolution Radiometer (AVHRR) vegetation data. In situ SM observations from the U.S., France, and Mongolia for diverse land cover types are used to validate the algorithm. The performance of the estimated volumetric SM was within the requirements for most science and operational applications (root mean square error of 0.05 m³ m⁻³, coefficient of variation of 0.08, and correlation coefficient of 0.89). The retrieved SM and VWC distributions are very consistent with global climatology and ...

Tags:

Author Keywords:

Hydrology; Land surface temperature; Passive microwave remote sensing; Soil moisture; Vegetation

Figure 8:

LINK

Panoply

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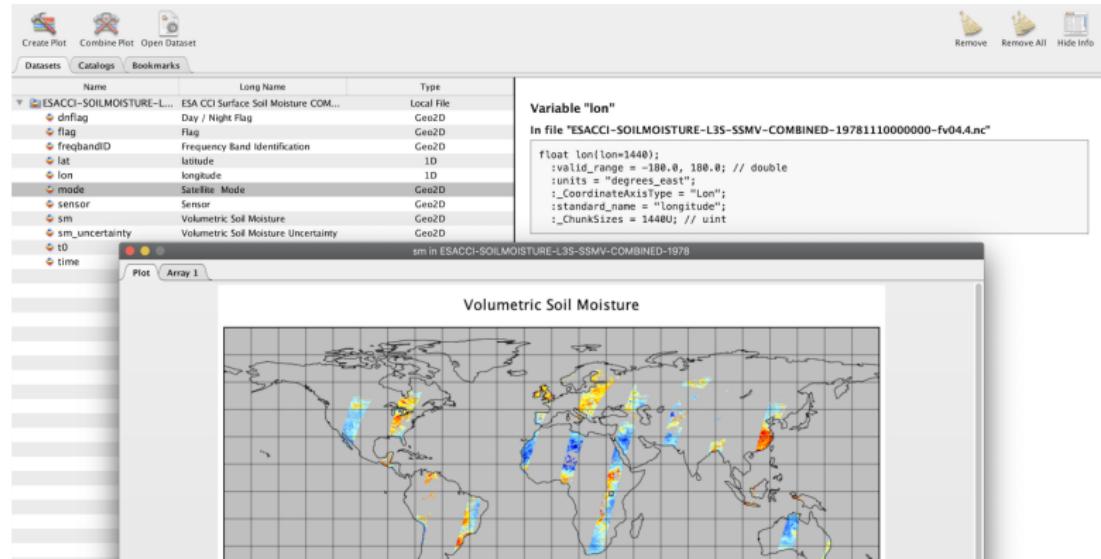


Figure 9:

LINK

Sublime Text

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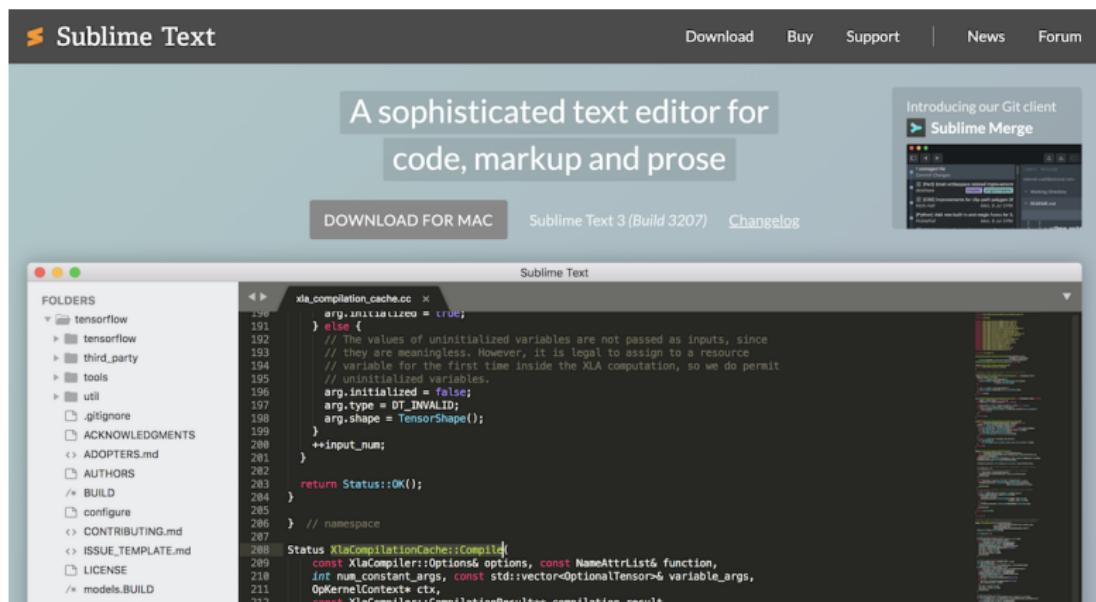


Figure 10:

LINK

Filezilla

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and Code

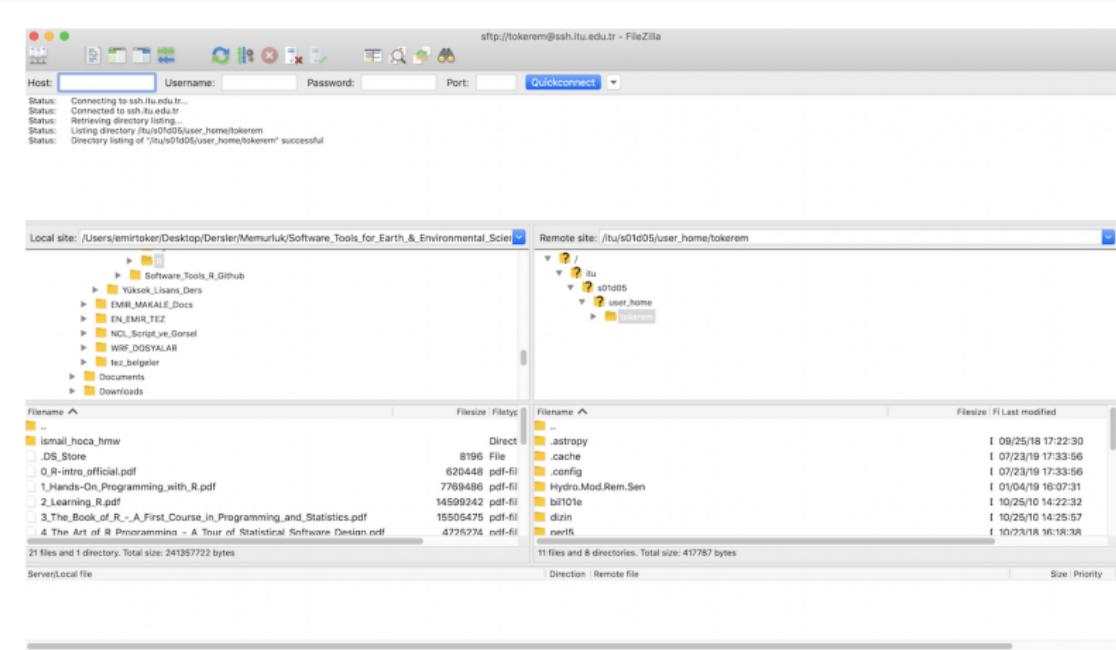


Figure 11:

LINK

ArcGIS

Week1 - Data
and Code

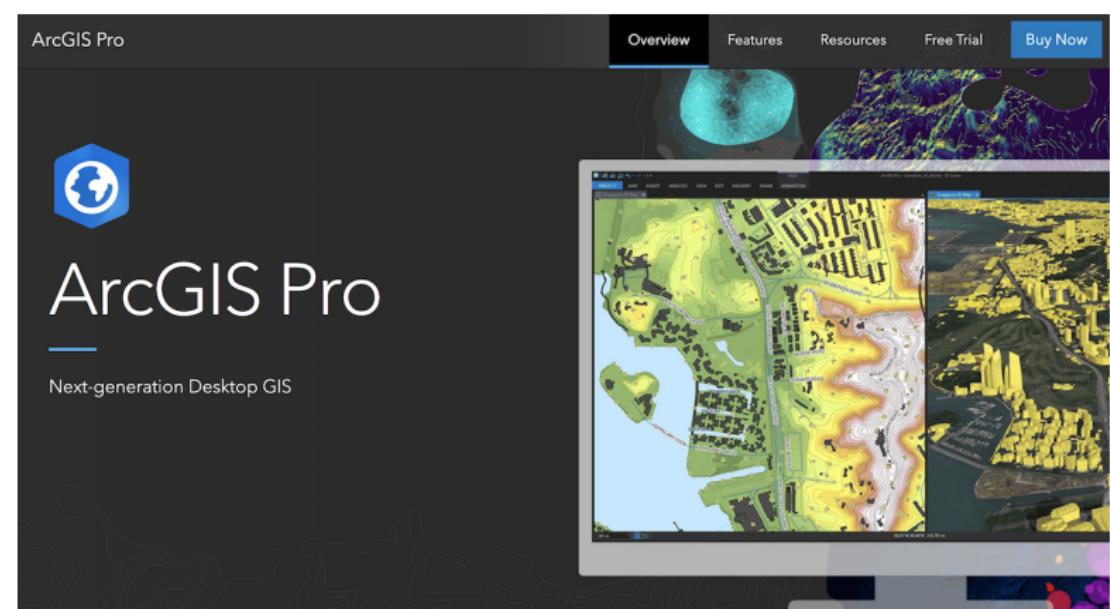
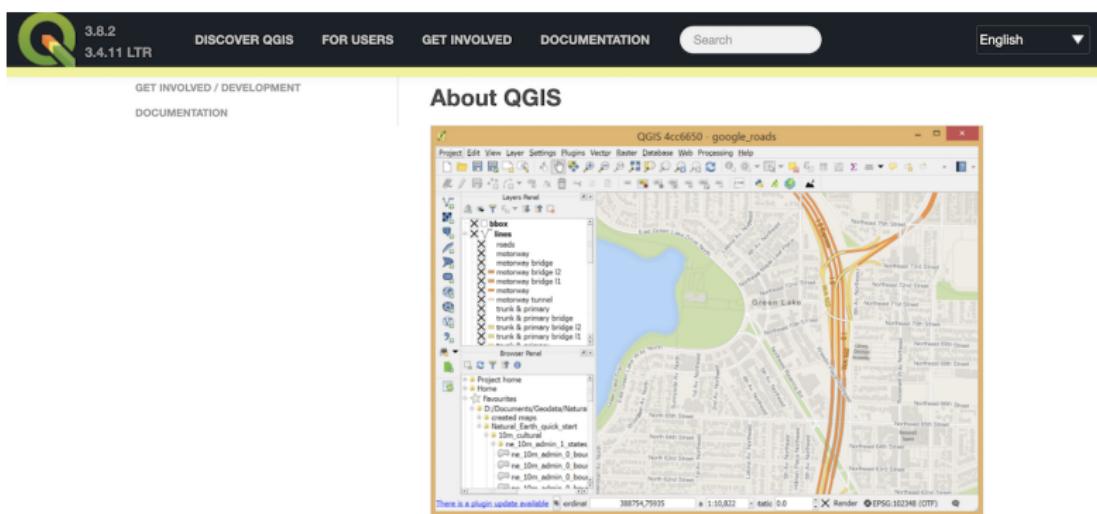


Figure 12:

LINK

QGIS

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and Code



QGIS is a user friendly Open Source Geographic Information System (GIS) licensed under the GNU General Public License. QGIS is an official project of the Open Source Geospatial Foundation (OSGeo). It runs on Linux, Unix, Mac OSX, Windows and Android and supports numerous vector, raster, and database formats and functionalities.

Figure 13:

LINK

Anaconda

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and Code

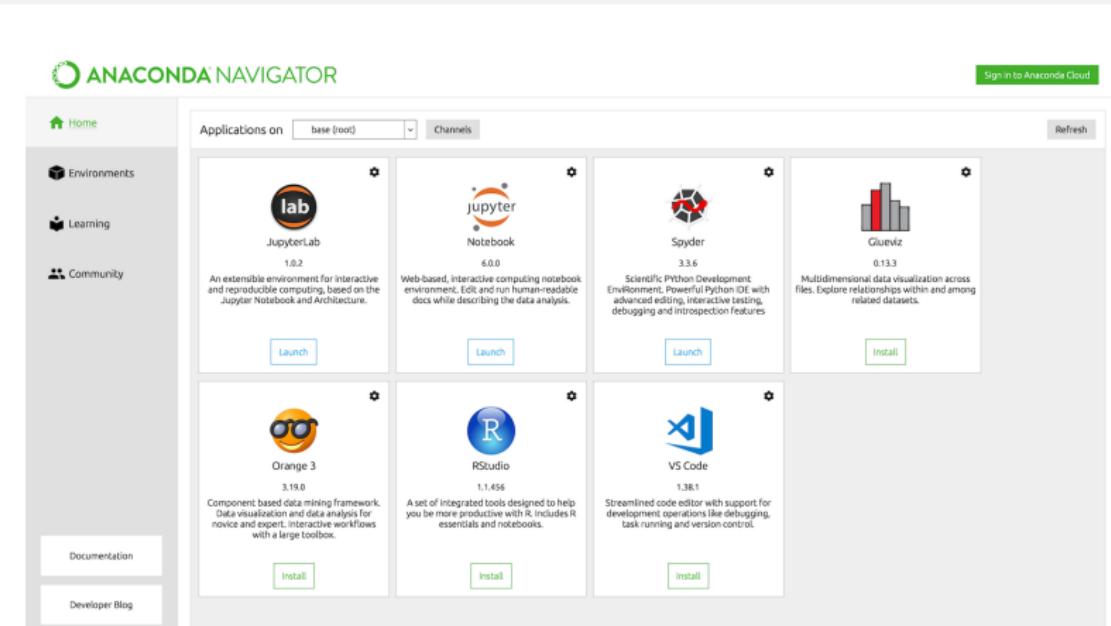


Figure 14:

LINK

Jupyter

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and Code

The screenshot shows the Jupyter Notebook interface. At the top, there is a navigation bar with the Jupyter logo, a search bar containing 'jupyter', and buttons for 'Quit' and 'Logout'. Below the navigation bar, there are three tabs: 'Files' (selected), 'Running', and 'Clusters'. A message 'Select items to perform actions on them.' is displayed above the file list. On the left, there is a sidebar with a tree view of the directory structure, showing '0' items under the root. The main area displays a table of files and their details:

	Name	Last Modified	File size
<input type="checkbox"/>	Adim	6 ay önce	
<input type="checkbox"/>	Anaconda	20 gün önce	
<input type="checkbox"/>	Applications	10 ay önce	
<input type="checkbox"/>	Desktop	bir dakika önce	
<input type="checkbox"/>	Documents	27 dakika önce	
<input type="checkbox"/>	Downloads	bir saat önce	
<input type="checkbox"/>	Movies	10 ay önce	
<input type="checkbox"/>	Music	10 ay önce	
<input type="checkbox"/>	Pictures	8 ay önce	
<input type="checkbox"/>	Public	10 ay önce	
<input checked="" type="checkbox"/>	Untitled.ipynb	6 ay önce	689 B
<input checked="" type="checkbox"/>	Untitled1.ipynb	5 ay önce	556 B
<input checked="" type="checkbox"/>	Untitled2.ipynb	20 gün önce	43.7 kB
<input checked="" type="checkbox"/>	Untitled3.ipynb	20 gün önce	129 kB
<input type="checkbox"/>	DomainWizard.cfg	9 ay önce	25 B

Figure 15:

LINK

Cygwin

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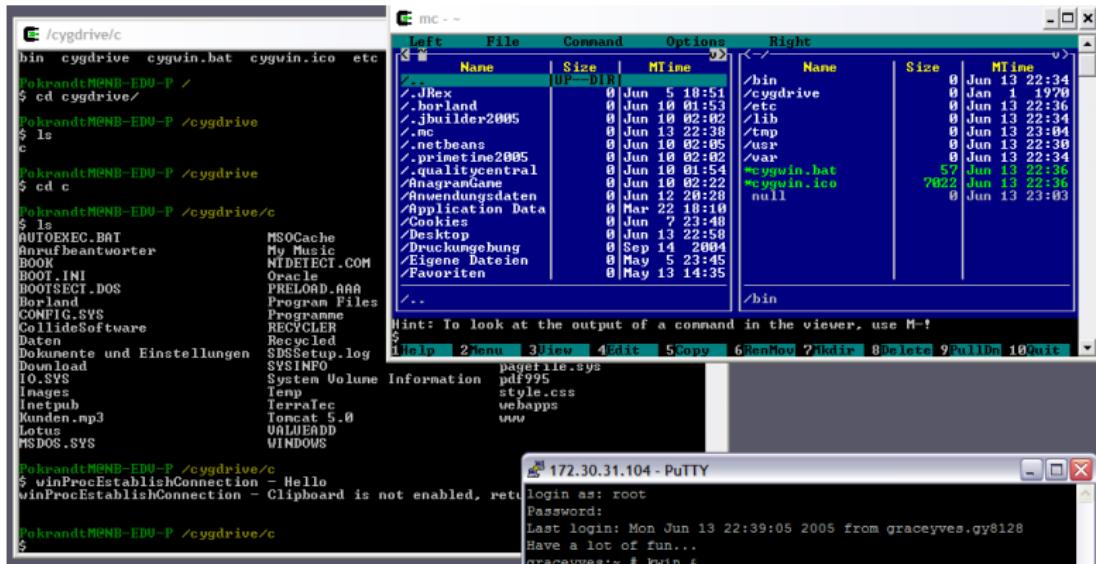


Figure 16:

LINK

R Studio

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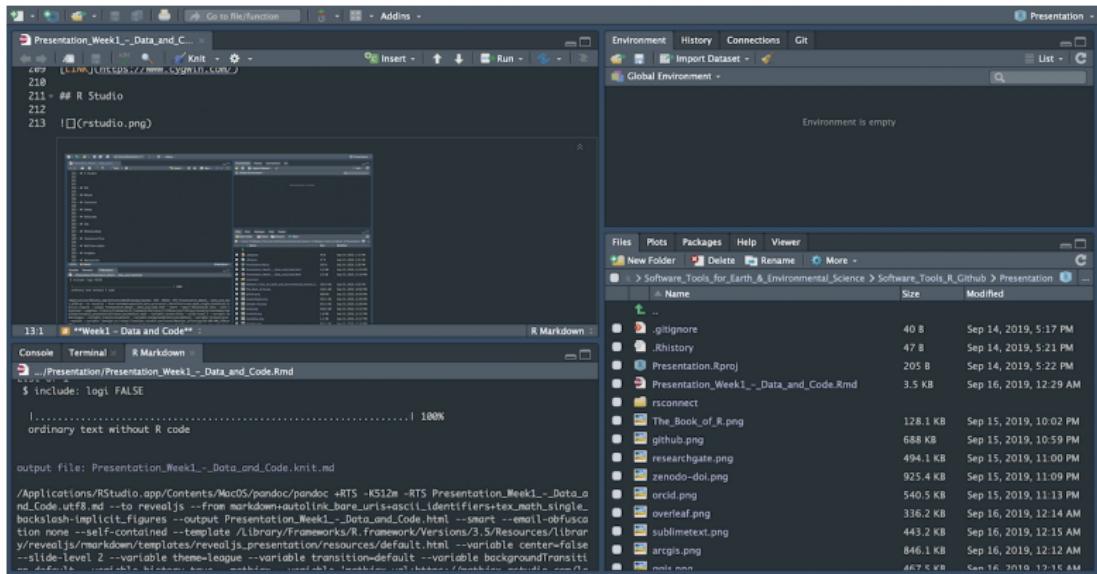


Figure 17:

LINK

UCAR | NCAR | CISL

★ IMPORTANT: LETTER TO NCL USERS **NCL** Examples Functions Resources Popular Links What's New Support

Search

NCL is an interpreted language designed specifically for scientific data analysis and visualization.

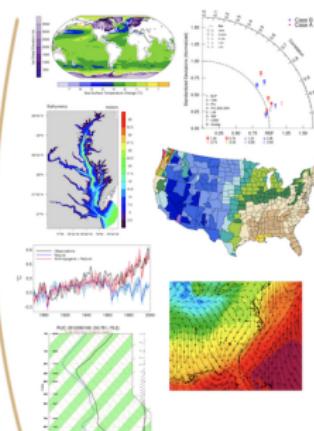
Portable, robust, and free, NCL is available as binaries or open source.

Supports NetCDF 3/4, GRIB 1/2, HDF 4/5, HDF-EOS 2/5, shapefile, ASCII, binary.

Numerous analysis functions are built-in.

High-quality graphics are easily created and customized with hundreds of graphic resources.

Many example scripts and their corresponding graphics are available.



NCAR is sponsored by the National Science Foundation

Any opinions, findings and conclusions or recommendations expressed in this material do not necessarily reflect the views of the National Science Foundation.

Pivot to Python
For questions about the [pivot to Python announcement](#), please visit this [FAQ](#).

NCL Release Information
Current Version: 6.6.2
Release Date: February 28, 2019

NCL Contributions and Support
Have an NCL bug report? Submit an [issue](#) via our [NCL GitHub repo](#).
Have a question about NCL itself? Subscribe to [ncl-talk](#) and then email your

Figure 18:

MetEd

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The screenshot shows the MetEd website homepage. At the top, there is a dark header bar with the COMET MetEd logo on the left, and links for "English" and "Español" on the right. Below the header is a navigation bar with links for "HOME", "EDUCATION & TRAINING", "COMMUNITIES", "RESOURCES", "ABOUT", and "MY METED". A user account link "Hi, emir!" is visible, along with "Your Account", "Logout", and "Donate" buttons. The main content area features a search bar and a "Search" button. A large section titled "What Is MetEd?" describes the platform as a collection of training resources for the geoscience community. It includes a short video link and a "Recent Publications" section featuring the "2019 NWS Satellite Applications Workshop". To the right, a "News and Updates" sidebar displays a recent donation post.

COMET MetEd

Hi, emir ! Your Account Logout Donate

HOME EDUCATION & TRAINING COMMUNITIES RESOURCES ABOUT MY METED

Teaching and Training Resources for the Geoscience Community

Search

What Is MetEd?

MetEd is a free collection of **hundreds of training resources** intended for the **geoscience community**. Whether you're an experienced meteorologist honing existing skills or a student looking for new geoscience topics of interest, we have something for you. Learn more about MetEd in this short [video](#).

Recent Publications

2019 NWS Satellite Applications Workshop

The US National Weather Service (NWS) 2019 Satellite Applications Workshop was held 30 July-1 August 2019 and was co-sponsored by the NWS Operations Proving Ground (OPG), NWS Office of the Chief Learning Officer

< >

News and Updates

Donate!
Posted on: 2019-03-07

Please consider a tax deductible donation to MetEd to fund future upgrades to the system and to existing lessons. Your contribution of \$10 will help us not only maintain the high quality instruction you expect from MetEd, but will allow us to incorporate new technology in the site. Why wait? Click on the donate button now at the top of this page.

Figure 19:

LINK

Coursera

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The screenshot shows the Coursera homepage with a search bar and navigation links. Below, a specific search result for 'Data Analysis' is displayed. The result includes the course title, provider (Johns Hopkins University), rating (4.5 stars), number of courses (10), hours (136), and level (Beginner). Buttons for 'View Syllabus' and 'SPECIALIZATION' are also visible.

Explore > Data Science > Data Analysis

Data Analysis

Data analysis courses address methods for managing and analyzing large datasets. Start your career as a data scientist by studying data mining, big data applications, and data product development.

Filter by: Skills • 1 Job Title Level • 1 Language • 2 Type Creator Clear all filters

4 Results Sort by: Most Relevant

Data Science
Johns Hopkins University

SPECIALIZATION

★★★★★ 4.5 | 10 COURSES | 136 HOURS | BEGINNER

Statistics with R
Duke University

SPECIALIZATION

Figure 20:

LINK

Udemy

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The screenshot shows the Udemy homepage with a search bar containing 'r programming'. Below the search bar, it displays '3350 results for r programming'. There are filters for 'Ratings' and 'Duration'. On the right, there are buttons for 'All Filters' and 'Sort'. The main content area shows two course cards:

- R Programming A-Z™: R For Data Science With Real Exercises!**
By Kirill Eremenko
80 lectures • 10.5 hours • All Levels
Learn Programming In R And R Studio. Data Analytics, Data Science, Statistical Analysis, Packages, Functions, GGPLOT2 | By Kirill Eremenko
\$49.99 (was \$409.99)
★★★★★ 4.6 (22,423 ratings)
- Data Science and Machine Learning Bootcamp with R**
By Jose Portilla
127 lectures • 18 hours • All Levels
Learn how to use the R programming language for data science and machine learning and data visualization! | By Jose Portilla
\$49.99 (was \$399.99)
★★★★★ 4.6 (8,262 ratings)

On the right side, there are two boxes: 'Not sure?' (with a 30-day money-back guarantee) and 'Top companies trust Udemy' (listing lyft, Pinterest, and adidas). A 'Try Udemy for Business' button is also present.

Figure 21:

LINK

Datacamp

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The screenshot shows the DataCamp website's career track page for 'Data Scientist with R'. At the top, there is a navigation bar with icons for user profile, search, and various service links like Learn, Practice, Projects, Assessment, Pricing, For Business, and a user's XP level (450 XP). Below the navigation is a large banner for the 'Data Scientist with R' track. The banner features a shield-shaped logo with the text 'DATA SCIENTIST' and an 'R' icon. To the left of the logo, there is descriptive text about what a Data Scientist does and an 'Enroll' button. Below the banner, there is a summary of the track: 'R Language | 94 hours | 22 Courses'. The main content area below the banner shows the first course in the track, 'Introduction to R', which is described as 'Master the basics of data analysis by manipulating common data structures such as vectors, matrices and data frames.' There is also a progress bar consisting of five dots, with the first one highlighted in yellow. To the right of the course card, there is a green box with the text 'Put your data skills to the test' and 'Discover your data science skill level in 10 minutes with DataCamp Signal™.', followed by a 'Learn More' button. At the bottom right, there is a section labeled 'INSTRUCTORS'.

Figure 22:

LINK

Edx

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The screenshot shows the edX search interface. At the top, there is a navigation bar with the edX logo, a search bar containing "Courses ▾ Programs & Degrees ▾ Schools & Partners edX for Business", and user options "Sign In" and "Register". Below the navigation, a search results summary says "Viewing 50 results matching" and includes a search input field and a "CLEAR ALL" button. A search term "programming r" is shown in a search history box with an "X" icon. On the left, there is a sidebar titled "Refine your search" with sections for "Availability" and "Subjects". The "Availability" section lists "Current" (23), "Starting Soon" (2), "Upcoming" (6), "Self-Paced" (27), and "Archived" (11). The "Subjects" section lists "Biology & Life Sciences" (10), "Business & Management" (6), "Computer Science" (16), "Data Analysis & Statistics" (27), "Economics & Finance" (2), and "Education & Teacher Training" (1). To the right, three course cards are displayed: "Statistics and R" by HarvardX (verified, current, self-paced), "Data Science: R Basics" by HarvardX (verified, current, self-paced), and "Introduction to R for Data Science" by Microsoft (verified, current, self-paced).

Figure 23:

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Khan academy

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The screenshot shows the Khan Academy website with the following details:

Top Navigation: Courses ▾, Search, Khan Academy logo, Donate, Login, Sign up.

Section Header: Math, Statistics and probability

Mastery Points: 15,200 Mastery points available in course.

Course Summary: Analyzing categorical data, Displaying and comparing quantitative data, Summarizing quantitative data, Modeling data distributions, Exploring bivariate numerical data.

Skills and Topics:

- Analyzing categorical data:** 0/1300 Mastery points. Topics: Analyzing one categorical variable, Two-way tables, Distributions in two-way tables.
- Displaying and comparing quantitative data:** 0/1200 Mastery points. Topics: Displaying quantitative data with graphs, Describing and comparing distributions, More on data displays.
- Summarizing quantitative data:** 0/1700 Mastery points. Topics: Measuring center in quantitative data, More on mean and median, Interquartile range (IQR), Variance and standard deviation of a sample, More on standard deviation, Box and whisker plots.

Course Challenge: Test your knowledge of the skills in this course. A green robot icon is shown.

Figure 24:

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Stack overflow

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The screenshot shows the Stack Overflow homepage with a search bar at the top containing 'R programming'. Below the search bar, there's a navigation menu with links to Home, Products, Customers, Use cases, and a search field. On the left, there's a sidebar with links to Home, PUBLIC, Stack Overflow (selected), Tags, Users, Jobs, TEAMS, and a 'First 10 Free' button. The main content area is titled 'Search Results' and displays '500 results' for the query 'R programming'. The first result is a question titled 'Q: With arrays, why is it the case that a[5] == 5[a]?'. It has 1548 votes, 18 answers, and was asked by Dinah on Dec 19 '08. The second result is 'Q: using R programming in java' with 23 votes, 4 answers, and was asked by Prashant on Oct 27 '10. The third result is 'Q: How to organize large R programs?' with 157 votes and 11 answers. To the right of the search results, there's a yellow sidebar with the heading 'Want a python job?' listing several job opportunities: 'Data Analyst' at Osmosis, 'Senior/Backend Developer' at Commencis, 'Data Science Curriculum Writer' at ThinkInc., 'QA Automation/Load Testing' at FineTune Learning, and 'selenium' as a skill. At the bottom right, there's a section titled 'Hot Network Questions'.

Figure 25:

Wolfram alpha

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The screenshot shows the WolframAlpha search interface. At the top, there is a red starburst logo followed by the text "WolframAlpha" in a large, orange, sans-serif font, with the tagline "computational intelligence." in smaller orange text below it. Below the logo is a search bar containing the query "what is the age of the earth". To the right of the search bar are several icons: a star, a square, and a refresh symbol. Underneath the search bar are various interactive buttons: "Extended Keyboard", "Upload", "Examples", and "Random". The main content area is divided into sections. The first section, "Input interpretation:", shows the query "Earth age" in a box, with an "Open code" link next to it. The "Result:" section displays "4.54 billion years". The "Unit conversion:" section shows "1.43 × 10¹⁷ seconds". The final section, "Comparison as time:", states "≈ 69 × time since the Cretaceous-Tertiary boundary (=65 Myr)".

Figure 26:

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Dropbox

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The screenshot shows the Dropbox web interface. On the left, there's a sidebar with navigation links: 'Files' (selected), 'My files', 'Sharing', 'File requests', and 'Deleted files'. A promotional box at the bottom left encourages users to try Dropbox Business for more space in 2019. The main area is titled 'Dropbox' and displays a list of shared folders:

Name	Modified	Members	Actions
BROWN BAG Readings	--	15 members	...
ezgi	--	2 members	...
Paper_HSK53IE	--	Only you	...
Polar_Oceanography	--	7 members	...

On the right side, there's a search bar, an 'Upgrade account' button, a notification bell, and a user profile icon. Below the search bar is a message: 'Select a file to see more details'. At the bottom right, there are 'Create' and '...' buttons.

Figure 27:

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Wetransfer

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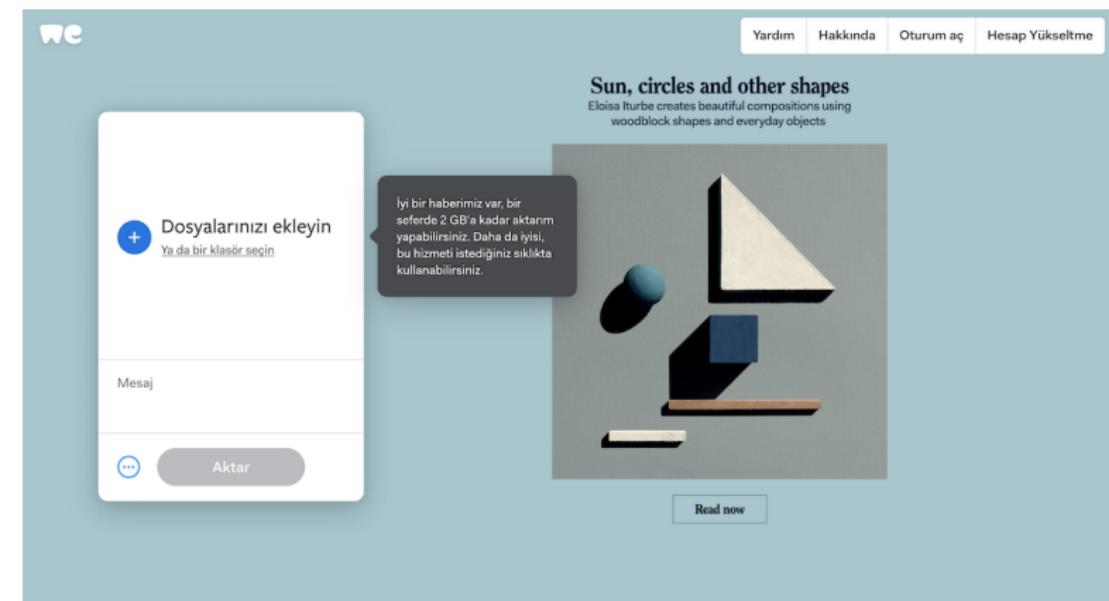


Figure 28:

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