Mauro Lepore

Software engineer, data science consultant

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I'm most experienced in software development, research and teaching. I implement software solutions to help researchers work in an efficient, transparent, and reproducible way. I created and maintain a number of R packages now hosted on GitHub and CRAN. I often contribute as a developer or teacher to popular open software projects or communities (https://maurolepore.github.io/).

EXPERIENCE

Software engineer, data science consultant

2017-08 - present
ForestGEO
National Museum of Natural History, Smithsonian Institution, Washington DC, USA

My official title is "IT specialist - R-package developer". I implement software solutions to help researchers work in an efficient, transparent, and reproducible way. I develop new software (R packages) and update a legacy code base. I also teach data science skills (e.g. R, Git, GitHub) to researchers and students, and help them troubleshoot, both remotely and in person.

Data science instructor

The Carpentries
2018 - present

- Texas A&M University-Kingsville
- National Museum of Natural History, Smithsonian Institution
- Smithsonian Environmental Research Center, Smithsonian Institution

As a certified instructor of The Carpentries, I teach and help teach foundational coding and data science skills to researchers (e.g. Excel, OpenRefine, SQL, R).

Postdoctoral research fellow

2016-02 to 2017-06
O'Dea Lab: Change and Variation in Tropical Seas
Smithsonian Tropical Research Institute, Panama City, Panama

I researched how coral reefs varied and changed through time, before and since human impacts. I supervised two wonderful interns (one undergraduate and one postgraduate student).

Teaching university students

Smithsonian Tropical Research Institute
2016-12
Smithsonian Tropical Research Institute, Bocas del Toro Research Station, Panama

Teaching assistant for university students from Texas A&M University (GEOS405) during a five-days long field-based research. Responsible for delivering lectures, mentoring research projects, boating and snorkeling safety, logistics in English and Spanish.

Teaching university students

The University of Queensland
2012-04 - 2014-11

- St Lucia, Brisbane, Australia
- Moreton Bay Research Station, North Stradbroke Island, Australia
- Heron Island Research Station, Heron Island, Australia

Teaching assistant for university students, including classroom-based courses (MARS2014), and field-based research for resident students of The University of Queensland (MARS2005), and for international students from Stanford University and the University of California. Responsible for delivering lectures, mentoring research projects, marking assignments, boating and snorkeling safety, logistics.

Teaching high school students

The University of Queensland
2011-04 - 2015-06

- Moreton Bay Research Station, North Stradbroke Island, Australia
- St Lucia, Brisbane, Australia

Lecturer and demonstrator during science camps for high school students doing lab- and field-based research. Also responsible for liaising with school teachers and training less experienced tutors.

Outreach

2003-07 - 2003-12 and 2004-04 - 2004-08
Museo Argentino de Ciencias Naturales, Argentina
Parque Centenario, Buenos Aires, Argentina

Responsible for explaining the exhibition at the national museum of natural history in Buenos Aires, Argentina, to engage the general public, from kids to adults, and primary school groups.

EDUCATION

The University of Queensland, Australia

PhD, Ecology, Environmental Sciences, Geochemistry
2011-2015
School of Biological Sciences, ARC Center of Excellence for Coral Reef Studies

Thesis: “Long term dynamics of coral reefs in the inshore southern Great Barrier Reef”.

I examined three issues:

1. The potential of a reef system to constitute a refuge for coral reefs from global warming.
2. The accretion rate of the reef flat and reef slope environment through time.
3. Changes in coral community structure through time, and the mechanisms of community assembly.

I supervised three students and 20 volunteers, both in the field and lab.

Universidad de Buenos Aires, Argentina

Licentiate degree, Biological Sciences, Marine Ecology
1999-2008
Faculty of Natural Sciences

Thesis: "Estudio del crecimiento de la almeja amarilla Argentina Mesodesma mactroides por marcaje fluorescente in situ y comparación con el método de análisis de distribuciones de frecuencias de tallas".

I compared a novel and traditional method to study the growth rate of a clam.

CERTIFICATIONS

Instructor of The Carpentries

The Carpentries
2018-06
Credential http://bit.ly/2TRE8M5

SKILLS

Industry knowledge

Software engineering, quantitative research, statistics, teaching.

Tools & technologies

- R programming for data science (e.g. tidyverse packages, rmarkdown, shiny), Q&A (e.g. testthat), and software engineering (e.g. usethis, rlang, devtools, roxygen2), using both functional programming and object-oriented (e.g. S3) paradigms.
- Bash and Git for version control
- GitHub for collaboration and project management (e.g. scrum, kanban)
- TravisCI for continuous integration, and for automatically building and deploying websites and R packages

LANGUAGES

English (full professional) and Spanish (native).

PROJECTS

tor: Import Multiple Files From a Single Directory at Once

2019-01 - present
URL https://CRAN.R-project.org/package=tor

The goal of tor (to-R) is to help you to import multiple files from a single directory at once, and to do so as quickly, flexibly, and simply as possible.

fgeo: Analyze Forest Diversity and Dynamics

2017-08 - present
URL https://forestgeo.github.io/fgeo/

'fgeo' is a collection of R packages to analyze forest diversity and dynamics. It includes packages to manipulate and plot ForestGEO data, and to do common analyses including abundance, demography, and species-habitats associations.

PEER-REVIEWED PUBLICATIONS

2017
Look to the past for an optimistic future
A O'dea, EM Dillon, AH Altieri, ML Lepore
Conservation Biology 31 (6), 1221-1222

2015
Long-Term Dynamics of Coral Reefs in the Inshore Southern Great Barrier Reef
ML Lepore (supervisors: J Pandolfi and JX Zhao)
PhD thesis. School of Biological Sciences, The University of Queensland

2011
Population structure, growth and production of the yellow clam *Mesodesma mactroides* (Bivalvia: Mesodesmatidae) from a high-energy, temperate beach in northern Argentina
M Herrmann, JEF Alfaya, ML Lepore, PE Penchaszadeh, WE Arntz.
Helgoland Marine Research 65 (3), 285

2009
Aplicación de calceína para la estimación del crecimiento de la almeja amarilla *Mesodesma mactroides* Reeve, 1854
ML Lepore, PE Penchaszadeh, F Alfaya, E José, M Herrmann
Revista de biología marina y oceanografía 44 (3), 767-774

2009
Growth estimations of the Argentinean wedge clam *Donax hanleyanus*: A comparison between length-frequency distribution and size-increment analysis
M Herrmann, ML Lepore, J Laudien, WE Arntz, PE Penchaszadeh
Journal of Experimental Marine Biology and Ecology 379 (1-2), 8-15

2009
Reproductive cycle and gonad development of the Northern Argentinean *Mesodesma mactroides* (Bivalvia: Mesodesmatidae)
M Herrmann, JEF Alfaya, ML Lepore, PE Penchaszadeh, J Laudien
Helgoland Marine Research 63 (3), 207

2008
Estudio del crecimiento de la almeja amarilla argentina *Mesodesma mactroides* por marcaje fluorescente in situ y comparación con el método de análisis de distribuciones de frecuencias de tallas
ML Lepore (supervisors: M Herrmann, PE Penchaszadeh)
Licentiate thesis. Facultad de Ciencias Exactas y Naturales, Universidad de Buenos Aires