Coding is for Everybody

Lunch Lecture by Ekaterina Akimova-Höpner

My story with R

BSc in Biology 2014-2017

MSc in Medical biology 2017-2019

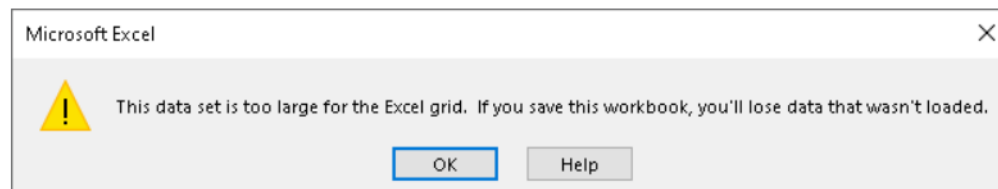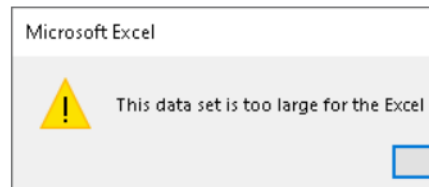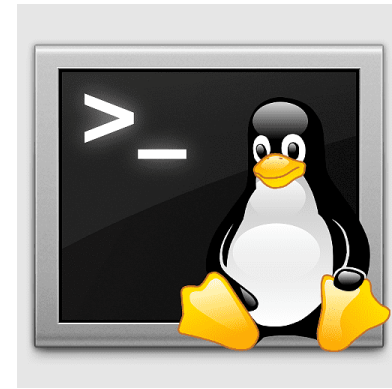Dr. rer. nat. in Medical biology 2020-2023

…analyzing DNA sequencing results

…analyzing DNA sequencing results

Microsoft Excel ×

⚠ This data set is too large for the Excel grid. If you save this workbook, you'll lose data that wasn't loaded.

OK   Help

…analyzing DNA sequencing results

SAMHD1 restrains aberrant nucleotide insertions at repair junctions generated by DNA end joining 🔓

Ekaterina Akimova, Franz Josef Gassner, Maria Schubert, Stefan Rebhandl, Claudia Arzt, Stefanie Rauscher, Vanessa Tober, Nadja Zaborsky, Richard Greil, Roland Geisberger ✉

LAB + CODE

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LAB + CODE

Open Access   Article

Detecting Bacterial–Human Lateral Gene Transfer in Chronic Lymphocytic Leukemia

by Ekaterina Akimova [1,2] ✉ ⓘ, Franz Josef Gassner [1] ✉ ⓘ, Richard Greil [1] ✉ ⓘ, Nadja Zaborsky [1] ✉ ⓘ and Roland Geisberger [1,*] ✉ ⓘ

LAB + CODE

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LAB + CODE

R development:
package for mutation analysis
contribution to a patch in base R

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BioBeatZ

by Ekaterina Akimova-Höpner

Gründungsphase

maftools

circlize

edgeR
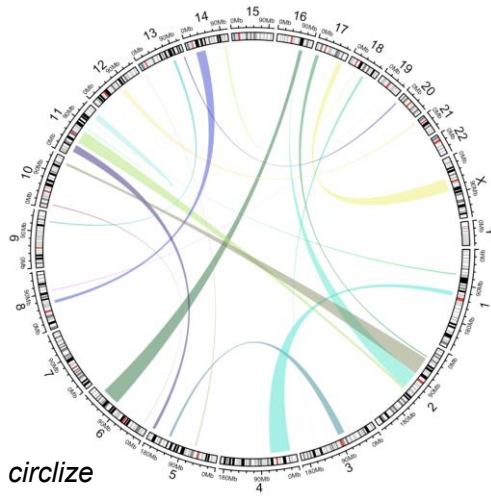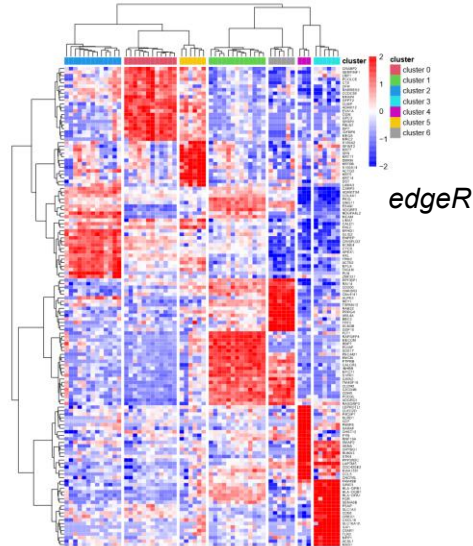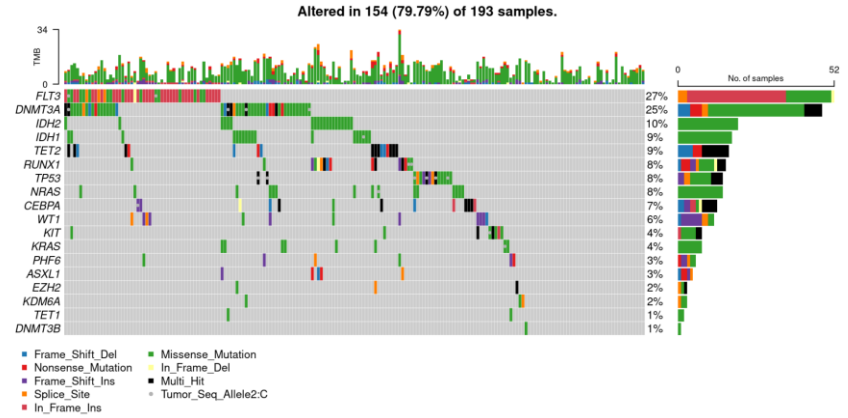
Pharmaverse

Successful R-based Test Package Submitted to FDA

By R Consortium | December 8, 2021 | Blog

The R Consortium is happy to announce that on Nov 22nd, 2021, the R Submissions Working Group successfully submitted an R-based test submission package through the FDA eCTD gateway! The submission package has been received by the FDA staff who were able to reproduce the numerical results.

Basic Statistics

$F_{\text{Welch}}(2,165.34) = 409.93$, $p = 8.27\text{e-}65$, $\widehat{\omega_p^2} = 0.83$, $\text{CI}_{95\%}$ [0.79, 0.86], $n_{\text{obs}} = 333$

$p_{\text{Holm−corrected}} = 0.031$

$p_{\text{Holm−corrected}} = 4.3\text{e-}14$

$p_{\text{Holm−corrected}} = 8.42\text{e-}14$

$\widehat{\mu}_{\text{mean}} = 48.83$

$\widehat{\mu}_{\text{mean}} = 47.57$

$\widehat{\mu}_{\text{mean}} = 38.82$

Adelie
(n = 146)

Chinstrap
(n = 68)

Gentoo
(n = 119)

species

bill_length_mm

$\log_e(\text{BF}_{01}) = -195.59$, $\widehat{R^2_{\text{Bayesian}}^{\text{posterior}}} = 0.70$, $\text{CI}_{95\%}^{\text{HDI}}$ [0.67, 0.73], $r_{\text{Cauchy}}^{\text{JZS}} = 0.71$
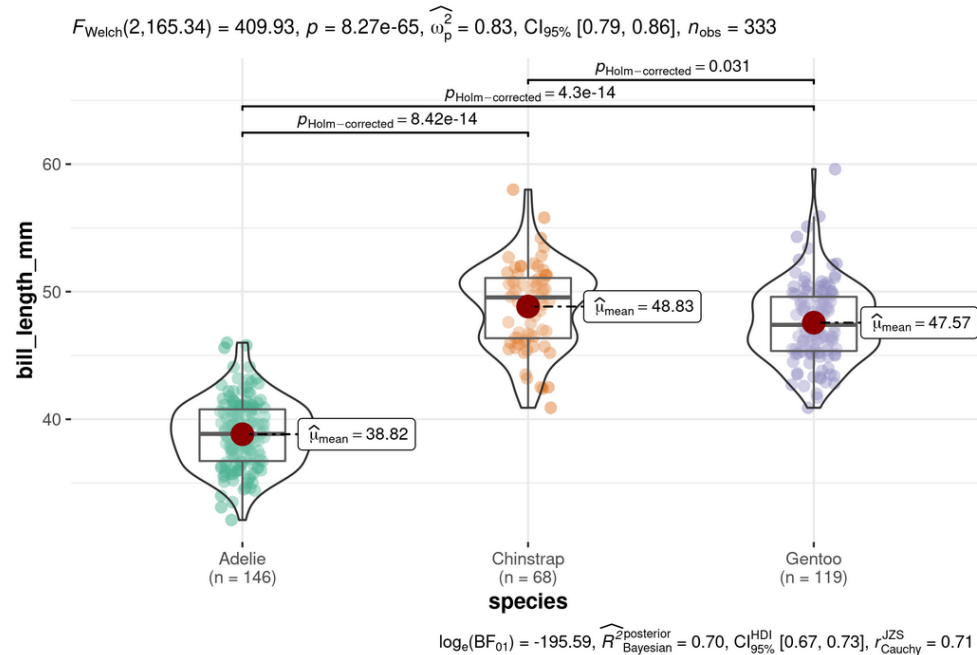
Pairwise test: **Games-Howell test**; Comparisons shown: **only significant**

ggstatsplot
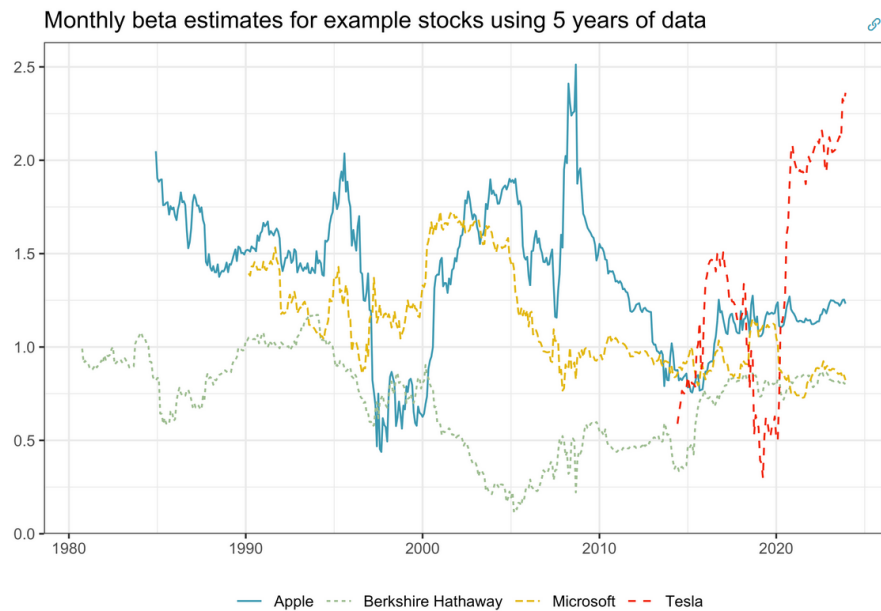
Figure 1: The CAPM betas are estimated with monthly data and a rolling window of length 5 years based on adjusted excess returns from CRSP. We use market excess returns from Kenneth French data library.

Reporting with Quarto

https://quarto-dev.github.io/quarto-gallery/page-layout/tufte.pdf

https://apreshill.github.io/palmerpenguins-useR-2022/#/title-slide

Interactive applications with Shiny

https://shiny.posit.co/r/gallery/interactive-visualizations/superzip-example/
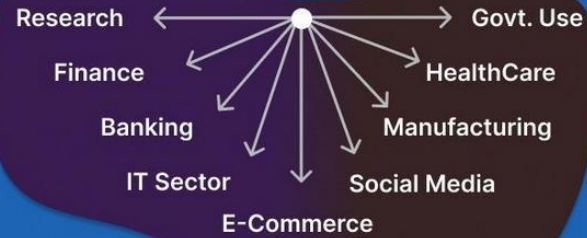
and more …

But is it really for EVERYBODY?

Diversity in Tech: Participation

Women comprise **57%** of professional occupations

Women hold **26%** of computing jobs

Women make up **23%** of computer Hardware Engineers

Women make up **19%** of Software Engineers

WOMEN

ncwit.org

Gender Ratio | IT TALENTS IN EUROPE

Finland 72 | 28
Russia 75 | 25
Sweden 71 | 29
Norway 71 | 29
Denmark 72 | 28
Estonia 70 | 30
Latvia 70 | 30
Lithuania 65 | 35
The Netherlands 74 | 26
Germany 74 | 26
Belarus 72 | 28
United Kingdom 71 | 29
Ireland 68 | 32
Poland 76 | 24
Ukraine 78 | 22
Czech Republic 71 | 29
Belgium 75 | 25
Austria 75 | 25
Switzerland 76 | 24
Hungary 73 | 27
France 76 | 24
Romania 74 | 26
Portugal 71 | 29
Serbia 73 | 27
Spain 70 | 30
Bulgaria 71 | 29
Italy 72 | 28
Greece 75 | 25
Croatia 71 | 29

Although the IT industry is mainly a domain of men, every year the number of women entering the market grows.

The highest percentage of female developers is found in Lithuania (35%), Ireland (32%), Spain (30%), Estonia (30%) and Latvia (30%).

% of software developers:
Men • 55 | 45 • Women

SOURCE: talentup.io

Based on a sample of over 2M unique tech workers in Europe. Only countries with over 8,000 software developers included.
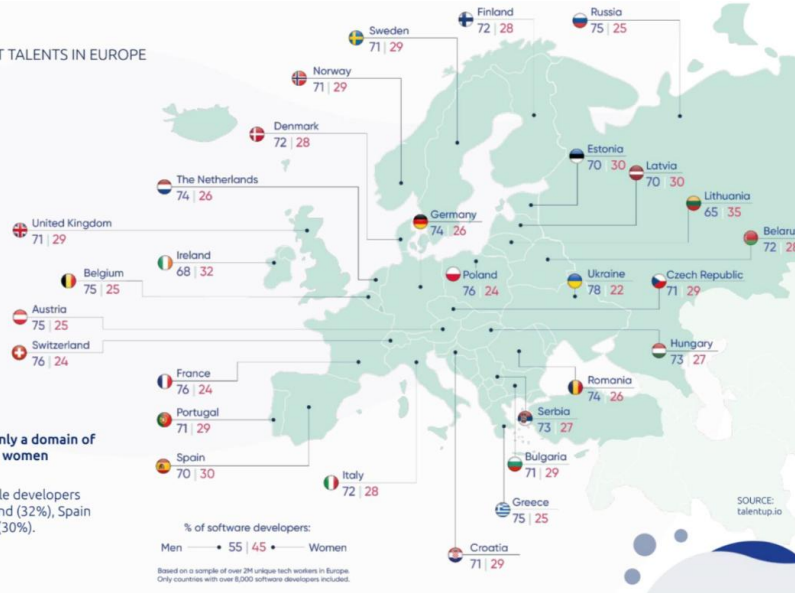
Share of capital raised and deals (%) by founding team gender composition, 2017 to 2021

From Atomico State of European Tech report 2021

Diversity Benefits Creativity

Groups with **greater diversity** solve complex problems **better and faster** than homogeneous groups.

- Better and faster problem solving

- Increased sales revenue and market share
- Higher-than-average profitability
- Greater return on equity to shareholders

Page, S. E. (2009). *The Difference: How the Power of Diversity Creates Better Groups, Firms, Schools, and Societies*. Princeton, NJ: Princeton University Press

Herring, C. (2009). Does Diversity Pay?: Race, Gender, and the Business Case for Diversity. *American Sociological Review, 74*(2), 208-224.

THE **LINUX** FOUNDATION

ncwit.org

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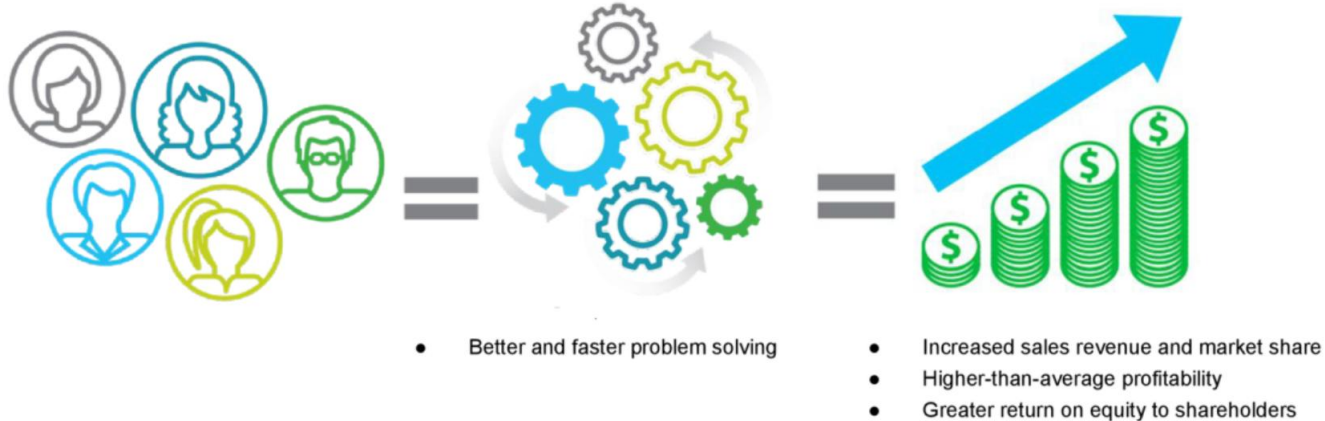- Greater return on equity to shareholders

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THE **LINUX** FOUNDATION

ncwit.org

Great minds don't think alike. They challenge each other to think differently.
- Adam Grant
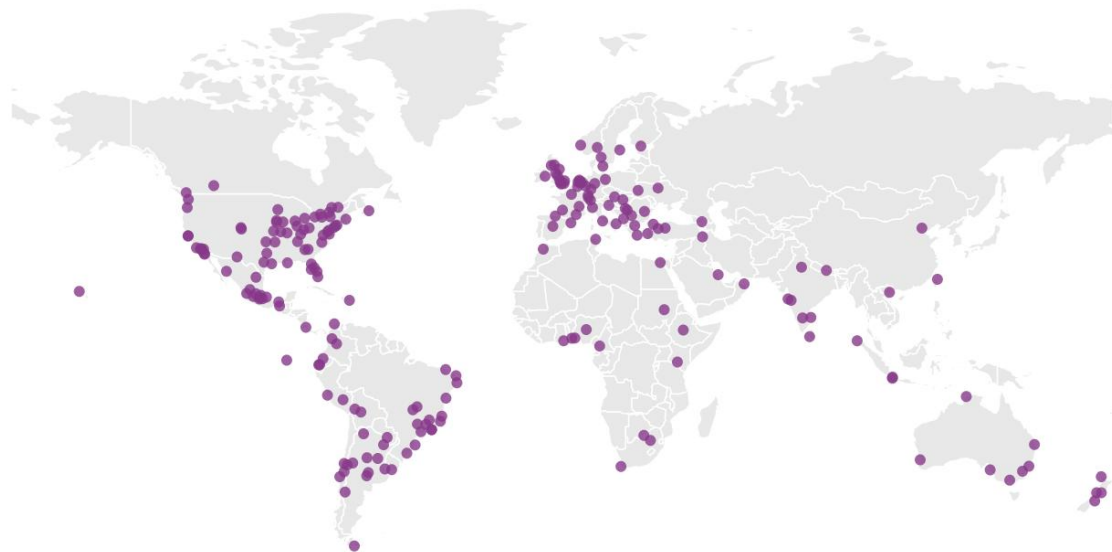
Mission

R-LADIES IS A WORLDWIDE ORGANIZATION WHOSE MISSION IS TO PROMOTE GENDER DIVERSITY IN THE R COMMUNITY.

The R community suffers from an under-representation of minority genders (including but not limited to cis/trans women, trans men, non-binary, genderqueer, agender) in every role and area of participation, whether as leaders, package developers, conference speakers, conference participants, educators, or users (see recent stats).

Code of conduct

CODE OF CONDUCT

R-Ladies is dedicated to providing a harassment-free experience for everyone. We do not tolerate harassment of participants in any form.

This code of conduct applies to all R-Ladies spaces, including meetups, Twitter, Slack, mailing lists, both online and offline. Anyone who violates this code of conduct may be sanctioned or expelled from these spaces at the discretion of the Global Leadership Team.

Some R-Ladies spaces may have additional rules in place, which will be made clearly available to participants. Participants are responsible for knowing and abiding by these rules.

Harassment includes:

- Offensive comments related to gender, gender identity and expression, sexual orientation, disability, mental illness, neuro(a)typicality, physical appearance, body size, age, race, or religion.
- Unwelcome comments regarding a person's lifestyle choices and practices, including those related to food, health, parenting, drugs, and employment.
- Deliberate misgendering or use of 'dead' or rejected names.
- Gratuitous or off-topic sexual images or behaviour in spaces where they're not appropriate.
- Physical contact and simulated physical contact (eg, textual descriptions like "*hug*" or "*backrub*") without consent or after a request to stop.
- Threats of violence.
- Incitement of violence towards any individual, including encouraging a person to commit suicide or to engage in self-harm.
- Deliberate intimidation.
- Stalking or following.
- Harassing photography or recording, including logging online activity for harassment purposes.
- Sustained disruption of discussion.
- Unwelcome sexual attention.
- Pattern of inappropriate social contact, such as requesting/assuming inappropriate levels of intimacy with others.
- Continued one-on-one communication after requests to cease.
- Deliberate "outing" of any aspect of a person's identity without their consent except as necessary to protect vulnerable people from intentional abuse.
- Publication of non-harassing private communication.

… since January 2024

https://www.meetup.com/rladies-salzburg/

mentorship

workshops and tutorials

gaining visibility

networking

friendly ear

support & challenge

https://www.meetup.com/rladies-salzburg/

Thank you &
See you soon!

salzburg@rladies.org
e.akimovahoepner@gmail.com

https://www.meetup.com/rladies-salzburg/