





# DAVID ZHANG


Experienced bioinformatician who enjoys learning and applying the best practices for method development. I focus on developing robust, user-friendly tools that harness transcriptomic data to improve the rate of genetic diagnosis.

View this CV online with links at [dzhang32.github.io/cv/](https://dzhang32.github.io/cv/)

## EDUCATION

- Present  
|  
2017
- **PhD, Bioinformatics**  
University College London  London, UK
    - **Thesis:** Using transcriptomics to improve the genetic diagnosis rate of rare disease patients.
- 2016  
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2015
- **MSc, Neuroscience**  
University College London  London, UK
    - **Thesis:** The role of mitochondrial dysfunction in Xeroderma pigmentosum
    - **Grade:** Merit (68%)
    - Awarded post-graduate support scheme bursary (£10,000)
- 2015  
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2012
- **BSc, Biomedical science**  
University College London  London, UK
    - **Thesis:** Investigating the function of CYFIP1 in the development of rat hippocampal neurons.
    - **Grade:** 2:1 (69%)
- 2012  
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2007
- **H.S.**  
Queen Elizabeth's School  Barnet, UK
    - **Grades:** Maths (A\*), Biology (A\*), Chemistry (A\*), Sociology (A).

## WORK EXPERIENCE

- 2021
- **Bioinformatician internship (2 months)**  
[Verge Genomics](#)  Remote, US
    - **Goal:** Set up an aberrant splicing detection pipeline for drug target discovery in C9orf72 ALS patients.
    - Used **docker** to setup a reproducible workflow<sup>1</sup> for running aberrant splicing analyses on an **AWS** instance.

## CONTACT

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🐙 [dzhang32](#)  
in [david-zhang32](#)

## LANGUAGE SKILLS



The long-form version of my CV is available as a [pdf](#)

Made with the R package [datadrivencv](#) and [pagedown](#).

The source code is available at [github.com/dzhang32/cv](https://github.com/dzhang32/cv).

Last updated on 2021-10-18.



## SOFTWARE & PROGRAMMING

Present  
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2020



### Bioconductor packages

- `dasper`<sup>2</sup>: Detection of aberrant splicing events in RNA-sequencing. **Author** and **maintainer**.
- `megadePTH`<sup>3</sup>: BigWig and BAM related utilities. An R wrapper for the megadePTH software developed by Chris Wilks. **Co-author** and **maintainer**.
- `ODER`<sup>4</sup>: Optimising the definition of Expressed Regions. Submitted to Bioconductor. **Co-author** and **maintainer**.

Present  
|  
2021



### Python packages

- `codino`<sup>5</sup> converts a codon design to the expected amino acid frequencies, and vice versa. **Author** and **maintainer**.

2021



### Web scraping

- Applied the python packages **Beautiful Soup** and **Selenium** to web scrape<sup>6</sup> information on all UK biotechnology companies.

2021



### Data science blog

- Chess-related blog post<sup>7</sup> was selected for the hand-on-tutorials column in Towards Data Science, which displays pieces that highlight best practices of data science.
- Applied popular data science packages in **python** to analyse<sup>8</sup> chess.com data.



## TEACHING EXPERIENCE

2020



### Developing Bioconductor packages

University College London

📍 Virtual Event

- Hosted workshop<sup>9</sup> on best practices for developing Bioconductor packages using `biothis`<sup>10</sup>.

2020



### Unit testing using testthat edition 3

rstats club

📍 Virtual Event

- Talk<sup>11</sup> regarding unit testing fundamentals, the importance of testing and new features released in the R package testthat edition 3.

2020  
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2018



### R fundamentals

Clinician Coders

📍 London, UK

- Developed materials<sup>12</sup> and lead workshops that aimed to teach R fundamentals to clinicians.



## SELECTED PUBLICATIONS

- 2021 • **Developmental Consequences of Defective ATG7-Mediated Autophagy in Humans**  
The New England Journal of Medicine
- Collier J, Guissart C, Oláhová M, Sasorith S, Piron-Prunier F, Suom Fi, **Zhang D**, Martinez-Lopez N, Leboucq N, Bahr A, Azzarello-Burri S, Reich S, Schöls L, Polvikoski TM, Meyer P, Larrieu L, Schaefer AM, Alsaif HS, Alyamani S, Zuchner S, Barbosa IA, Deshpande C, Pyle A, Rauch A, Synofzik M, Alkuraya FS, Rivier F, Ryten M, McFarland R, Delahodde A, McWilliams TG, Koenig M, and Taylor RW.
  - Role: Analyst
  - DOI: <https://doi.org/10.1056/NEJMoa1915722>
- 2021 • **Megadepth: efficient coverage quantification for BigWigs and BAMs**  
Bioinformatics
- Wilks C, Ahmed O, Baker DN, **Zhang D**, Collado-Torres L, Langmead B.
  - Role: R package developer.
  - DOI: <https://doi.org/10.1093/bioinformatics/btab152>
- 2021 • **Integration of eQTL and Parkinson's disease GWAS data implicates 11 disease genes**  
Jama Neurology
- Kia DA, **Zhang D**, Guelfi S, Manzoni C, Hubbard L, United Kingdom Brain Expression Consortium (UKBEC), International Parkinson's Disease Genomics Consortium (IPDGC), Reynolds RH, Botía JA, Ryten M, Ferrari R, Lewis PA, Williams N, Trabzuni D, Hardy J, Wood NW.
  - Role: Co-first author.
  - DOI: <https://doi.org/10.1001/jamaneurol.2020.5257>
- 2020 • **Incomplete annotation of disease-associated genes is limiting our understanding of Mendelian and complex neurogenetic disorders.**  
Science advances
- **Zhang D**, Guelfi S, Ruiz SG, Costa B, Reynolds RH, D'Sa K, Liu W, Courtin T, Peterson A, Jaffe AE, Hardy J, Botia JA, Collado-Torres L and Ryten M.
  - Role: First Author.
  - DOI: <https://doi.org/10.1126/sciadv.aay8299>



## LINKS

1. [https://github.com/dzhang32/auto\\_splice](https://github.com/dzhang32/auto_splice)
2. <https://bioconductor.org/packages/release/bioc/html/dasper.html>
3. <https://bioconductor.org/packages/release/bioc/html/megadepth.html>
4. <https://github.com/eolagbaju/ODER>
5. <https://github.com/dzhang32/codino>
6. [https://github.com/dzhang32/biotech\\_web\\_scrape](https://github.com/dzhang32/biotech_web_scrape)

- 7: <https://towardsdatascience.com/how-has-the-queens-gambit-impacted-the-popularity-of-online-chess-43594efe5a98>
- 8: <https://github.com/dzhang32/chess>
- 9: [https://dzhang32.github.io/biocthis\\_workshop/](https://dzhang32.github.io/biocthis_workshop/)
- 10: <https://bioconductor.org/packages/release/bioc/html/biocthis.html>
- 11: <https://youtu.be/CIAn7vTwq0>
- 12: <https://github.com/ClinicianCoders/ClinicianCoders>