

# KASIA KEDZIERSKA

I am a Computational Biologist and Machine Learning Researcher dedicated to advancing methods development and application within biology and healthcare.

Currently, I lead an R&D project focused on **biological Foundation Models (FMs)**. During my internship with the **bioML team** at **Microsoft Research New England**, I evaluated FMs for single-cell biology applications. Previously, at **Novo Nordisk Research Centre in Oxford**, I used NLP techniques and knowledge graphs to enhance biomedical research. Additionally, with the **Turing Data Study Group**, I developed a framework using **Transfer Learning** and the **YOLO** model to identify sea pens from ocean floor video footage.

With my extensive expertise in Computational Biology, coupled with a robust background in Data Science and Machine Learning, I am enthusiastic about driving innovations at the intersection of these disciplines.

## SELECTED WORK EXPERIENCE

- present  
|  
2024
- Deep Learning Researcher @ DeepLife, Remote**  
Leading an R&D project on Foundation Models in biology, including mentoring and supervising a Master's student.
- 2023
- Intern @ Microsoft Research New England, Cambridge, Massachusetts, USA**  
During the summer I investigated the potential of the **Foundation Models** in the space of single cell biology. I was mentored by **Alex Lu**, **Ava Amini**, and **Lorin Crawford**.
- 2021
- Intern @ Novo Nordisk Research Centre Oxford, Oxford, United Kingdom**  
I worked with NLP and knowledge graphs to screen **biomedical articles** to identify and prioritise therapeutic targets. To increase the impact of the analysis and increase reach I built and deployed an **interactive dashboard** (using **R Shiny**) to allow colleagues within the company to investigate and visualise the results directly in real-time.
- 2024  
|  
2018
- DPhil Researcher @ Wellcome Centre for Human Genetics, Big Data Institute, University of Oxford, UK**  
In my PhD project I looked at how **chromatin organization** influences **disease initiation and progression** in uterine cancer using multimodal data. I was also working on building and refining ML models of **cancer evolution**, specifically identifying evolutionary trajectories in the cancer of the uterus.

## EDUCATION

- 2024  
|  
2018
- DPhil in Genomic Medicine and Statistics @ Nuffield Department of Medicine, Brasenose College**  
PhD fully funded by the **Wellcome Trust** Four-year PhD Studentships in Science
- 2018  
|  
2015
- M. Sc. Eng., Biotechnology @ Warsaw University of Technology**  
Master thesis *Analysis of the mutational burden across gene sets in cancer* awarded the title of **The Best Master Thesis in Bioinformatics** defended in 2018.

## SELECTED CONFERENCE PRESENTATIONS

- 2024
- Invited attendee @ Chan Zuckerberg Initiative AI in Single-Cell Biology Workshop, Redwood City, CA, USA**
- 2023
- Chromatin modifiers in endometrial cancer, Poster @ Biology of Genomes 2023, Cold Spring Harbor, NY, USA**
- 2022
- Systematic characterisation of chromatin modifiers in endometrial cancer, Poster @ European Association for Cancer Research 2022 Congress, Seville, Spain**
- 2019
- Analysis of the mutational burden across gene sets in cancer, Invited talk @ Polish Bioinformatics Society Symposium, Cracow, Poland**

## SELECTED AWARDS AND HONORS

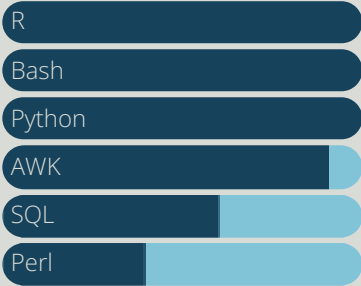
- 2023
- JXTX + CSHL 2023 Biology of Genomes Scholarship @ JXTX Foundation, Cold Spring Harbor Laboratory**  
Awarded to outstanding graduate students in genomics and data sciences.
- 2022
- Graduate Prize in the 'Outstanding work outside degree' category @ Nuffield Department of Medicine, University of Oxford**  
Each year Nuffield Department of Medicine, based on nominations, awards selected PhD students based on their performance within and outside of their degree.
- 2023  
|  
2021
- Senior Hulme Scholarship @ Brasenose College, University of Oxford**  
Senior Hulme Scholarship is awarded by Brasenose College, University of Oxford to DPhil students whose academic performance is deemed to be exceptional.

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[kasia.codes/resume/](https://kasia.codes/resume/)

## CONTACT

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- [kasia.codes](#)
- [in kzkedzierska](#)

## CODING SKILLS

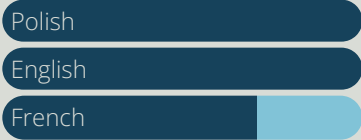


Python:  
PyTorch, Lightning, scverse/scanpy, scikit-learn, NumPy, Pandas, Seaborn, matplotlib and more

R:  
tidyverse, data.table, Shiny, plotly, tidymodels, caret and others

High Performance / Cloud Computing:  
SLURM, SGE, Google Cloud, Scaleway, Microsoft Azure, Azure Blob Storage, AWS Cloud Storage and more

## LANGUAGES





## SELECTED PUBLICATIONS

Full list of publication is available through my Google Scholar profile [scholar.google.com/citations?user=Yv6poTwAAAAJ](https://scholar.google.com/citations?user=Yv6poTwAAAAJ).

- 2023 • **Assessing the limits of zero-shot foundation models in single-cell biology @ bioRxiv**  
K. Z. Kedzierska, L. Crawford, A. P. Amini, A. X. Lu ✨ This work was featured in [The New York Times](#) ✨
- 2023 • **Data Study Group Final Report: CEFAS - Automated identification of sea pens using OpenCV and machine learning @ Zenodo**  
In alphabetical order: M. Asthana, R. Blackwell, S. Davis, A. Downie, J. Forsyth, K. Kedzierska, R. Mestre, Z. Reza, J. Ribeiro, P. Palola, Y. Said
- 2023 • **Functional analysis reveals driver cooperativity and novel mechanisms in endometrial carcinogenesis @ EMBO Molecular Medicine**  
M. Brown, A. Leon, K. Kedzierska, C. Moore, H. L. Belhoue-Davis, S. Flach, J. P. Lydon, F. J. DeMayo, A. Lewis, T. Bosse, I. Tomlinson, D. N. Church
- 2020 • **Prognostic integrated image-based immune and molecular profiling in early-stage Endometrial Cancer @ Cancer Immunology Research**  
N. Horeweg, M. de Bruyn, R. A. Nout, E. Stelloo, K. Kedzierska, A. León-Castillo, A. Plat, K. D. Mertz, M. Osse, I. M. Jürgenliemk-Schulz, L. C.H.W. Lutgens, J. J. Jobsen, E. M. van der Steen-Banasik, V. T. Smit, C. L. Creutzberg, T. Bosse, H. W. Nijman, V. H. Koelzer and D. N. Church
- 2019 • **Dynamics of cardiomyocyte transcriptome and chromatin landscape demarcates key events of heart development @ Genome Research**  
M. Pawlak, K. Z. Kedzierska, M. Migdal, K. A. Nahia, J. A. Ramilowski, L. Bugajski, K. Hashimoto, A. Marconi, K. Piwocka, P. Carninci and C. L. Winata
- 2018 • **SONiCS: PCR stutter noise correction in genome-scale microsatellites @ Bioinformatics**  
K. Z. Kedzierska, L. Gerber, D. Cagnazzi, M. Krützen, A. Ratan, L. Kistler



## SUMMER SCHOOLS & HACKATHONS

- 2022 • **Sea pen identification from video footage challenge @ Turing Data Study Group @ The Alan Turing Institute, London, UK**
- 2019 • **Machine Learning Summer School @ Imperial College London, University College London, London, UK**



## SELECTED TEACHING EXPERIENCE

- 2022 • **Unsupervised learning @ NGSchool2022: Machine Learning in Computational Biology, Jablonna, Poland**  
I co-led, with [Kaspar Märtens](#), lecture and tutorial sessions on unsupervised learning and its use cases in computational biology. All materials are available at [github.com/kzkedzierska/ngs22\\_unsupervised](https://github.com/kzkedzierska/ngs22_unsupervised).
- 2021 • **Data visualization in bioinformatics - hackathon mentor @ Online hackathon NGSprint, Discord**  
I led the hackathon in data visualisation with emphasis on computational biology. Teaching materials are available at [github.com/kzkedzierska/NGSprint\\_data\\_viz](https://github.com/kzkedzierska/NGSprint_data_viz).
- 2020 • **Online tutorials: Python for Data Science and Introduction to Python @ NGSeminars, YouTube**  
I led two Python tutorials: [Introduction to Python](#) [kasia.codes/talk/intro\\_to\\_python/](https://kasia.codes/talk/intro_to_python/) and [Python for Data Science](#) [kasia.codes/talk/py4ds/](https://kasia.codes/talk/py4ds/).
- 2019 • **Introduction to R @ Wellcome Centre for Human Genetics, Oxford, UK**  
8 week course in Introduction to R, Data Manipulation, Data Visualisation and RNA-seq data analysis.
- 2019 • **Introduction to Managing Code with Git @ Wellcome Centre for Human Genetics, Oxford, UK**  
I led a 2-hour introduction to working with Git. Materials, including slides and exercises are available at [kasia.codes/talk/into\\_to\\_git/](https://kasia.codes/talk/into_to_git/).



## SELECTED GRANTS

- 2022 | 2020 • **Visegrad Grant to organise NGSchool2022 @ Visegrad Fund**  
32,190 EUR awarded towards organising affordable training and conference focusing on ML application in Computational Biology. During this project I managed an international team of volunteers and led the organisation of [summer school](#), [conference](#), online [seminars](#) and [hackathon](#).
- 2023 | 2018 • **Scientific grant as part of Wellcome Trust funded DPhil @ Wellcome Trust**  
30,000 GBP towards research expenses for the PhD project which allowed me to design and led pilot experiments, managing the grant for successful execution of research objectives.



## NON-PROFIT WORK

- 2022 | 2018 • **President @ NGSchool Society**  
The goal of the Society is to promote and support science, with emphasis on computational biology.