

KASIA KEDZIERSKA

For my PhD @ **University of Oxford**, I study cancer of the uterus and chromatin organisation in disease progression. My work includes data exploration, data visualisation and communicating results to non-technical audience. For example, I take advantage of **feature selection** and **dimensionality reduction** methods, generate hypothesis with **unsupervised learning** and test them with *in silico* and *in vitro* experiments. I model complex biological processes with a repertoire of ML models - from **Linear Models** to **Deep Learning**.

I worked with **NLP** methods and knowledge graphs during my internship @ **Novo Nordisk Research Centre in Oxford**. Using **Transfer Learning** and **YOLO model** I built a framework to identify sea pens from a video footage of an ocean floor @ **Turing Data Study Group**. Currently, I'm using **RNNs** to investigate cancer evolution trajectories in endometrial cancer.

RESEARCH EXPERIENCE

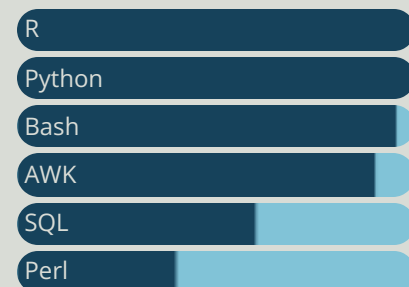
- 2021
- Intern**
Novo Nordisk Research Centre Oxford 📍 Oxford, UK
 - I used NLP based methods to screen biomedical articles and identify potential therapeutic targets. I built R Shiny App to allow colleagues within the company to investigate results from our pipeline.
- present
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2018
- DPhil Candidate**
Wellcome Centre for Human Genetics, Big Data Institute 📍 University of Oxford, UK
 - In my PhD project *Functional and evolutionary characterisation of chromatin organisation in endometrial cancer* I am looking at how chromatin organisation influences disease progression in cancer of the uterus.
 - Currently I'm working on building and refining ML models of cancer evolution.
- 2018
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2017
- Visiting Graduate Student**
Ratan group 📍 University of Virginia, USA
 - Developed **SONICS** - a tool for genotyping short tandem repeats (STRs) profiled using capture assays.
 - Worked on the Master thesis - *Analysis of the mutational burden across gene sets in cancer*.
- 2017
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2016
- Visiting Graduate Student**
Pemberton group 📍 University of Virginia, USA
 - Worked on Epigenetic regulation in prostate cancer.
 - Performed experiments and analyzed data from RNA-seq, ATAC-seq, and ChIP-seq assays.
- 2016
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2015
- Research Assistant**
Zebrafish Developmental Genomics 📍 IIMCB, Warsaw, Poland
 - I worked on the project: *Elucidating gene regulatory network of zebrafish heart development using genomics*.
 - I was responsible for both computational and experimental aspects of the project.

View this CV online
[🌐 kasia.codes/cv/](https://kasia.codes/cv/)

CONTACT

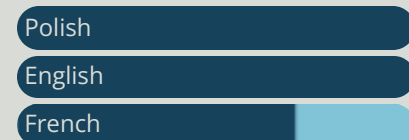
✉ kasia@well.ox.ac.uk
🐦 [kzkedzierska](https://twitter.com/kzkedzierska)
📁 github.com/kzkedzierska
🔗 kasia.codes
in [kzkedzierska](https://www.linkedin.com/in/kzkedzierska)

CODING SKILLS



R: tidyverse, data.table, Shiny, plotly, tidymodels, caret and others
Python: NumPy, Pandas, SciPy, scikit-learn, keras/Tensorflow, PyTorch, Seaborn, matplotlib and more

LANGUAGES






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

Based on the [Nick Strayer's CV package](#); modified source code for this CV is available [here](#).

Last updated on 2023-01-30.

EDUCATION

- present
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2018
- **DPhil. Candidate, Genomic Medicine and Statistics**
Nuffield Department of Medicine, Brasenose College  University of Oxford, UK
 - PhD fully funded by [Wellcome Trust Four-year PhD Studentships in Science](#)
- 2018
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2015
- **M. Sc. Eng., Biotechnology**
Warsaw University of Technology  Warsaw, Poland
 - 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.
- 2015
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2011
- **B. Sc. Eng., Biotechnology**
Warsaw University of Technology  Warsaw, Poland

PUBLICATIONS

- 2022
- **Discordant prognosis of mismatch repair deficiency in colorectal and endometrial cancer reflects variation in antitumour immune response and immune escape**
Mark A Glaire, Neil AJ Ryan, Marieke E Ijsselsteijn, **Katarzyna Kedzierska**, Sofia Obolenski, Reem Ali, Emma J Crosbie, Tjalling Bosse, Noel Fcc De Miranda, David N Church  The Journal of pathology
- 2021
- **Multi-omics analyses of early liver injury reveals cell-type-specific transcriptional and epigenomic shift**
M. Migdal, E. Tralle, K. A. Nahia, L. Bugajski, **K. Z. Kedzierska**, F. Garbicz, K. Piwocka, C. L. Winata, M. Pawlak  BMC Genomics
- 2020
- **The *MLH1* polymorphism rs1800734 and risk of endometrial cancer with microsatellite instability**
H. Russell, **K. Kedzierska**, D. D. Buchanan, R. Thomas, E. Tham, M. Mints, A. Keränen, G. G. Giles, M. C. Southey, R. L. Milne, I. Tomlinson, D. Church, A. B. Spurdle, T. A. O'Mara and A. Lewis  Clinical Epigenetics
- 2020
- **Prognostic integrated image-based immune and molecular profiling in early-stage Endometrial Cancer**
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  Cancer Immunology Research
- 2019
- **Dynamics of cardiomyocyte transcriptome and chromatin landscape demarcates key events of heart development**
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  Genome Research
- 2018
- **Genomic analysis of DNA repair genes and androgen signaling in prostate cancer**
K. Jividen, **K. Z. Kedzierska**, C.-S. Yang, K. Szlachta, A. Ratan and B. M. Paschal  BMC Cancer
- 2018
- **SONICS: PCR stutter noise correction in genome-scale microsatellites**
K. Z. Kedzierska, L. Gerber, D. Cagnazzi, M. Krützen, A. Ratan, L. Kistler  Bioinformatics



POSTERS, AND TALKS

- 2022 • **Systematic characterisation of chromatin modifiers in endometrial cancer**
European Association for Cancer Research 2022 Congress 📍 Seville, Spain
• Poster presentation
- 2019 • **Analysis of the mutational burden across gene sets in cancer**
Polish Bioinformatics Society Symposium 📍 Cracow, Poland
• Invited talk
- 2018 • **Differential mutation analysis across gene sets in cancers**
Biology of Genomes 2018 📍 Cold Spring Harbor, NY, USA
• Poster
- 2017 • **Epigenetic regulation of prostate cancer**
Visiting Graduate Traineeship Program Grantees Symposium 📍 Charlottesville, VA, USA
• Talk



AWARDS AND HONOURS

- present
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2021 • **Senior Hulme Scholarship**
Brasenose College, University of Oxford 📍 Oxford, UK
• Senior Hulme Scholarship is awarded by Brasenose College, University of Oxford to DPhil students whose academic performance is deemed to be exceptional.
- 2022
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2021 • **Graduate Prize in the 'Outstanding work outside degree' category**
Nuffield Department of Medicine, University of Oxford 📍 Oxford, UK
• Each year Nuffield Department of Medicine, based on nominations, awards selected PhD students based on their performance within and outside of their degree.
- 2019
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2018 • **Best Master Thesis in Bioinformatics**
Polish Bioinformatics Society 📍 Poland
• *Analysis of the mutational burden across gene sets in cancer* - Best Master Thesis defended in Bioinformatics in 2018 in Poland.
- 2017
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2016 • **Visiting Graduate Traineeship Program, now known as BioLAB**
Fulbright Poland 📍 University of Virginia, VA, USA
• The Visiting Research Graduate Traineeship Program offered 12-month research traineeships for outstanding, qualified students from the life sciences at selected institutions in the United States.
- 2015 • **Grasz o Staz**
PwC Poland 📍 Poland
• "Grasz o Staz" competition was a national, prestigious and highly competitive (1:25 success rate) scholarship program in Poland organized by PwC.



TEACHING EXPERIENCE

- 2022

● **Unsupervised learning**

NGSchool2022: Machine Learning in Computational Biology 📍 Jablonna, Poland

 - I co-led, with [Kaspar Märten](#), lecture and tutorial sessions on unsupervised learning and its use cases in computational biology. All materials are available at github.com/kzkdziarska/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/kzkdziarska/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/ and **Python for Data Science** kasia.codes/talk/py4ds/.
- 2019

● **Unsupervised learning, Introduction to Python**

[#NGSchool2019: Machine Learning for Biomedicine](#) 📍 Ostróda, Poland

 - Tutor for the Introduction to Python (3 h workshop) and for the Unsupervised learning (1,5 h lecture).
 - Materials for the Introduction to Python are available on [github](#)
- 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.
 - Materials available on github.com/kzkdziarsa/r_intro
- 2020
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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/.
- 2017

● **ATAC-seq workshop**

[#NGSchool2017: Single-cell Sequencing](#) 📍 Jachranka, Poland

 - Invited speaker
 - Materials for the course can be available on github.com/kzkdziarska/ATACseq_workshop



ATTENDED WORKSHOPS, SUMMER SCHOOLS

- 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

€ GRANTS

2022
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2020

● Visegrad Grant to organize [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](#).

2019

● Visegrad Grant to organize [NGSchool2019](#)

[Visegrad Fund](#)

- 23,500 EUR awarded towards organising #NGSchool2019 allowed to keep the cost of attending the school to the minimum and record the lectures for broader access.

NON PROFIT WORK

2022
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2018

● President

[NGSchool Society](#)

- The goal of the Society is to promote and support science, with emphasis on computational biology.
- President since 2019; Vice President 2018 - 2019, Founder