Kevin Michalewicz

Research Postgraduate

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Education

Imperial College London, London, United Kingdom — Nov. 2022 – Present

PhD Student in Mathematics

- Topic: Machine learning for antibody design.
- Supervisors: Dr. Barbara Bravi and Prof. Mauricio Barahona.
- President's Scholarship awarded.
- Student representative for the statistics section.
- Co-supervisor of Mingxin Shen (UROP student, July to September 2023).
  Investigating context-dependent mutations of antibodies via masked language model.
- Organiser of the Barahona Group Meetings during autumn 2023.

Université de Rennes I/CentraleSupélec/IMT Atlantique, Rennes, France — Sep. 2021 – Sep. 2022

MSc in Signal Processing (SISEA)

- First Class Honours and ranked 1st of all Master's students.
- Double degree with IMT Atlantique.

IMT Atlantique, Brest, France — Aug. 2020 – Sep. 2022

Engineer's Degree (Diplôme d'Ingénieur)

- Majors: Applied Mathematics (MCE) & Robotics (ROBIN).
- Eiffel Excellence Scholarship awarded.

Universidad de Buenos Aires, Buenos Aires, Argentina — Mar. 2017 – Sep. 2022

Electronic Engineering Degree

- GPA 9.17/10 (1st of 1391 students).
- Gold medal awarded.

Professional History

Imperial College London, London, United Kingdom — Jan. 2023 – Present

Graduate Teaching Assistant (GTA)

- Tutorial leader in Methods for Data Science, Statistics A and Network Analytics [Spring 2024].
- Tutorial leader in Data Analysis Tools for MRes students [Autumn 2023].
- Teaching Assistant in Statistics A and Introduction to Computation [Autumn 2023].
- Invigilation of more than 30 examinations.

- All Graduate Teaching Assistant Programme (GTAP) core courses completed.

École Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland Apr. 2022 – Sep. 2022
Deconvolution intern at the Laboratory of Astrophysics (LASTRO)

- Development of STARRED, a method for PSF generation and image deconvolution.
- Supervisors: Prof. Frédéric Courbin and Prof. Cecilia Galarza.

CEA Paris-Saclay, Paris, France Apr. 2021 – Aug. 2021
Deep Learning intern at CosmoStat

- Title: Machine Learning for image reconstruction in astrophysics.
- Supervisors: Dr. Jean-Luc Starck and Dr. Zaccharie Ramzi.

Faculty of Engineering - Universidad de Buenos Aires, Buenos Aires, Argentina Mar. 2018 – Oct. 2020
Student Teaching Assistant

- Physics II and III (Electromagnetism and Quantum Mechanics).
- Exercise and laboratory classes twice a week for 50-80 students.

Technical Skills

Main programming language: Python (TensorFlow, PyTorch, Pytest, Numpy, Jax, NetworkX, …).
Development environment: Visual Studio Code, Git & Jupyter notebooks.
Other tools: LaTeX, GitHub CI, PyPI, HPC, Amber, PyMOL, SAOImageDS9, Source Extractor.

Awards

President's Scholarship to support PhD at Imperial College London. Nov. 2022 – Present
Distinguished Student, Universidad de Buenos Aires. 2015, 2017, 2022 & 2023
Roth PhD Scholarship (declined). Mar. 2022
Eiffel Excellence Scholarship to support Engineering studies at IMT Atlantique. Aug. 2020 – Sep. 2022

Languages

- Native Spanish.
- Fluent English (C2) and French (C1).

Outreach

Speaker at *Research in the UK*. Nov. 2023 (CMS, University of Cambridge)
Speaker at *PhD Your Way*. Nov. 2023 (University of Bath & University of Oxford)
Tour Guide for MSc and PhD students. Oct. 2023 (Imperial)
Great Exhibition Road Festival 2023: member of the AI for Cancer Research stand. Jun. 2023 (Imperial/ICR)
BioHack London 2023: runner-up. Jun. 2023

Memberships

- The Antibody Society.
- The International Neural Network Society (INNS).
- The Royal Statistical Society (RSS) – PhD Membership.

Talks

Biophysics Winter 2023 ECR symposium.	Dec. 2023 (Imperial)
6th Mathematical Life Sciences meeting.	Oct. 2023 (Imperial)
10th International Gran Canaria School on Deep Learning 2023.	Jul. 2023 (Gran Canaria, Spain)
President's PhD Scholars Symposium 2023.	Jun. 2023 (Imperial)

Publications

Refereed Journal Articles

1. **Michalewicz**, Millon, Dux, Courbin. STARRED: a two-channel deconvolution method with Starlet regularization. *Journal of Open Source Software*, 2023, DOI:10.21105/joss.05340.
2. Akhaury, Starck, Jablonka, Courbin, **Michalewicz**. Deep Learning-based galaxy image deconvolution. *Frontiers in Astronomy and Space Sciences*, 2022, DOI:10.3389/fspas.2022.1001043.
3. Ramzi, **Michalewicz**, Starck, Moreau, Ciuciu. Wavelets in the Deep Learning Era. *Journal of Mathematical Imaging and Vision*, 2022, DOI:10.1007/s10851-022-01123-w.

Forthcoming Journal Contributions

4. **Michalewicz**, Barahona, Bravi. ANTIPASTI: interpretable prediction of antibody binding affinity exploiting Normal Modes and Deep Learning.
5. Millon, **Michalewicz**, Dux, Courbin, Marshall. PSF reconstruction and light-curve extraction using the STARRED scene modeling and deconvolution package.