Nikola Simidjievski

ASSOCIATE PROFESSOR

Télécom Paris, Institut Polytechnique de Paris, France

✉ ns779@cam.ac.uk • ⌂ simidjievskin.github.io • ⓖ simidjievskin • in nsimidjievski

About me

I am an Associate Professor at Télécom Paris, Institut Polytechnique de Paris, France. My main research focus is at the inter-section of machine learning, medicine and biology. Specifically, I am interested in different topics of multimodal data analysis, data representation learning, and explainable data analysis with applications in medicine (oncology) and healthcare. I have experience in computational scientific discovery (Physics-informed ML) and I am quite keen on machine learning for modelling dynamical systems. More broadly, I am also interested in applications of machine learning for space research.

Research interests:
• Machine Learning • Multimodal Data Analysis • Data Representation Learning
• Deep Learning • Explainable Data Analysis • Probabilistic Machine Learning
• Graph-based Learning • Computer Vision • Computational Scientific Discovery (Physics-Informed ML)

Applications in : Medicine (Oncology) & Biology [primary] • Space Research & Remote Sensing [secondary]

Technical Skills :
• Python • ML frameworks (Scikit Ecosystem, PyTorch/Keras etc.)
• Scientific & Data Viz Python frameworks
• Java • C/C++ • R • Bash • Databases (Relational & Non-relational)

Language Skills :
• English [full professional proficiency]
• Slovenian & Serbo-Croatian [bilingual proficiency]
• Macedonian [native]

Professional Experience

2025 -	**Associate Professor,** Télécom Paris, Institut Polytechnique de Paris, France
2025 -	**Visiting Fellow,** Department of Oncology and Department of Computer Science, University of Cambridge, UK
2023 - 2005	**Senior Research Associate,** PBCI, Department of Oncology, University of Cambridge, UK
2019-2023	**Research Associate,** Department of Computer Science and Technology, U. Cambridge, UK
2019 -	**Visiting Research Associate,** Dep. of Knowledge Technologies, Jožef Stefan Institute, Ljubljana, Slovenia
2018 -	**Co-Founder/Scientific Advisor,** Bias Variance Labs, d.o.o, Ljubljana, Slovenia
2011 - 2019	**Research Assistant,** Department of Knowledge Technologies, Jožef Stefan Institute, Ljubljana, Slovenia
2010	**Interring Young Researcher,** Laboratoire d'Informatique de l'univeristé de Franche-Comté, Montbeliard, France
2009 - 2011	**Young Researcher,** Macedonian Academy of Sciences and Arts, Skopje Republic of N. Macedonia

Education

Jožef Stefan International Postgraduate School

Ljubljana, Slovenia

DOCTOR OF PHILOSOPHY (PH.D.)

September 2016

- Area: Machine Learning
- Thesis title: Ensembles of process-based models of dynamic systems
- Advisors: Prof. Sašo Džeroski & Prof. Ljupčo Todorovski

Faculty of Electrical Engineering and Information Technologies, University "Ss. Cyril and Methodius"

Skopje, Republic of N. Macedonia

MSc. GRADUATE DEGREE

July 2011

- Computer Networks and e-Technologies
- Summa cum laude [10/10]

Faculty of Electrical Engineering and Information Technologies, University "Ss. Cyril and Methodius"

Skopje, Republic of N. Macedonia

BSc. UNDERGRADUATE DEGREE

September 2009

- Magna cum laude [9.25/10]

Projects & Grants

PROJECTS

2023 - 2028
SYNERGIA: Multimodal Data Analysis for Breast Cancer,
U.S. Department of Defense (DoD) [GRANT13769713], **Co-Investigator**

2019 - 2023
Integrated Cancer Medicine,
Mark Foundation & Cancer Research UK Cambridge Centre [C9685/A25177], Contributor

2014 - 2019
The Human Brain Project,
FP7/H2020 FET Flagship ICT-2013-60410, Contributor

2018 - 2021
IMPERATRIX: Improving reproducibility of experiments and reusability of research outputs in complex data analysis, Slovenian Research Agency J2-9230, Contributor

2016 - 2019
Machine Learning for System Sciences ,
Slovenian Research Agency N2-0056, Contributor

2014 - 2017
MAESTRA: Learning from Massive, Incompletely annotated and Structured Data ,
FP7 FET Open Xtrack EC ICT-2013- 612944, Contributor

2011 - 2014
SUMO: Super Modelling by combining imperfect models,
FP7 EC ICT-2009-266722, Contributor

GRANTS

2024 - 2026
FAIR-EO: FAIR, Open and AI-Ready Earth Observation Resources,
OSCARS Open Science Clusters, Horizon Europe, **Co-Investigator**
250,000 EUR

2023 - 2024
AiSTRA: Understanding spacecraft anomalies with knowledge graph reasoning,
European Space Agency [4000142664/23/NL/MH/mp], **Co-Investigator**
100,000 EUR

2020 - 2022
AiTLAS: AI4EO prototyping environment,
European Space Agency [4000130508/20/I-NB], **Principal Investigator**
500,000 EUR

2019 - 2021
GalaxAI: Machine Learning for Spacecraft Operations,
European Space Agency, [4000128994/19/D/AH], **Principal Investigator**
500,000 EUR

Awards & Fellowships

2011 - 2016
PhD Scholarship , Slovenian Research Agency (ARRS), Slovenia

2016
1st Place (Team) - Mars Express Power Challenge, European Space Agency

2005 - 2011
Scholarship for talented graduate and undergraduate students,
Ministry of Education, N. Macedonia

Teaching

MENTORING

Post-docs   *University of Cambridge*

[2024-] Dr. Aris Sionakidis, Multimodal Machine Learning for Breast Cancer
[2024-] Dr. Melis Irfan, Breast Cancer Histopathology with Multimodal Machine Learning
[2024-] Dr. Zak Kinsella, Breast Cancer Histopathology

PhD supervisions   *University of Cambridge*

[2023 -] Xiangjian Jiang (co-supervised with Mateja Jamnik)
[2022 -] Konstantin Hemker (co-supervised with Mateja Jamnik)
[2021 - 2025] Andrei Margeloiu (co-supervised with Mateja Jamnik)
[2021 -] Urska Matjasec (co-supervised with Mateja Jamnik)
[2019 - 2023] Paul Scherer (as an advisor)
[2019 - 2022] Jacob Deasy (as an advisor)

MSc. supervisions *University of Cambridge*

[2024/2025] Sidharrth Nagappan (co-supervised with Mateja Jamnik & Konstantin Hemker)
[2023/2024] Zak Buzzard (co-supervised with Mateja Jamnik & Konstantin Hemker) - graduated with distinction
[2023/2024] Laura Wenderoth (co-supervised with Mateja Jamnik & Konstantin Hemker) - graduated with distinction
[2022/2023] Gabriele Dominici - graduated with distinction
[2022/2023] Jonas Jurss - graduated with distinction
[2022/2023] Navindu Leelarathna - graduated with distinction
[2022/2023] Binjie Chen - graduated with distinction
[2022/2023] Xiangjian Jiang (co-supervised with Mateja Jamnik) - graduated with distinction
[2022/2023] Muhammad Hamza Sajjad (co-supervised with Mateja Jamnik)
[2022/2023] George Pulickal (co-supervised with Pietro Lio)
[2021/2022] Tom McIver (co-supervised with Pietro Lio)

COURSES

2024 - **Multimodal Machine Learning,** University of Cambridge (MPhil/Part III Graduate Studies)
2020 **Machine Learning for Modelling and Analysis of Medical Data,** CamBioScience, UK

INVITED TALKS

[Jul. 2024] "Multimodal AI for Cancer" Breakout Session, Integrative Cancer Medicine Symposium, Cambridge, UK
[Sep. 2022] CCAIM Summer School on "AI and Machine Learning in Healthcare"
[Jan. 2021] Integrated Cancer Medicine Seminar, UK
[Jan. 2021] University of Cambridge Computer Lab: Healthcare Research Showcase, UK
[Mar. 2020] Machine Learning for Space, Frankfurt Data Science, DE
[Jun. 2019] MFICM Data Integration Workshop, Cambridge, UK

Community Service

Editorials

- Discover the Mysteries of the Maya: Selected Contributions from the Machine Learning Challenge & The Discovery Challenge Workshop at ECML PKDD 2021, ISBN: 978-961-264-228-0
- Proceedings of the Human Brain Project Student Conference:
  2017 Edition (ISBN 978-2-88945-421-1) & 2018 Edition (ISBN 978-2-88945-588-1)
- The European Conference on Machine Learning & Principles and Practice of Knowledge Discovery in Databases, September 18-12, 2017, Skopje, Republic of N. Macedonia: Program. 2017

Associate Editor & Program Committee member

- Associate Editor of *Expert Systems with Applications*, Elsevier
- Editorial Board member of *Machine Learning Journal*, Springer
- Review Editor of *Frontiers in Genomics*, Frontiers
- PC member of ICML, NeurIPS, ICLR, IJCAI, ECML PKDD, Discovery Science etc. (with multiple top-reviewer recognitions)

Program Chair & Organisation

Sep. 2025: Discovery Science 2025
Sep. 2023: "Neuro-Explicit AI and Expert-informed Machine", ECML-PKDD 2023 workshop
Sep. 2021: "Discover the mysteries of the Maya", ML Challenge & Discovery Challenge Workshop at ECML PKDD 2021
Aug. 2021: "AI for Spacecraft Longevity", IJCAI 2021 Workshop
Jul. 2021: "Machine Learning for Spacecraft Health", SMC-IT 2021 Workshop
Feb. 2017 & Feb. 2018: Human Brain Student Conference
Sep. 2017: The European Conference on Machine Learning and Principles & Practice of Knowledge Discovery, ECML-PKDD 2017

Outreach

Oct. 2024: Interview for Breast Cancer Awareness Month Precision Breast Cancer Institute, University of Cambridge, UK)
Feb. 2021: Interview for Integrated Cancer Medicine podcast (Mark Foundation for Cancer Research & the CRUK Cambridge)
Mar. 2020: Interview for Cambridge Communications office on AI for Integrative Cancer Medicine