Fran Globlek

Data Scientist

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Work experience & projects

Science 2 Data Science | Data Science Fellow
March-April 2022

→ Causal inference in social housing, target variable engineering, propensity and uplift modelling @ London-based s2ds.org.

→ I helped develop a model that uses prior information on tenants' behaviours and rent arrears to inform Intervention Officers whether a tenant's debt is stable (or simply in technical arrears) or if in fact one of many possible interventions is needed to stop debt spiralling out of control in the future, even when these trends are not obvious to humans. We can estimate the impact of the possible interventions, and decision theory can be used to select the appropriate one, given that the costs to the company vary wildly: from sending a letter to going to court.

→ Nurtured an ML project in an international team observing best industry practices (e.g. agile development) from start - cleaning, analysing business client's data - to finish - creating an MLOps pipeline improving on baseline by 20%, the industry standard

Scuola Internationale Superiore di Studi Avanzati | PhD Candidate
Oct 2018 – Sept 2022 | Trieste, Italy

→ Maths PhD, thesis "Quantum Field Theories, Isomonodromic Deformations and Matrix Models", with advisors A. Tanzini & G. Bonelli, defended 19 September 2022 cum laude

→ Very recently, the physics community discovered how to deform the Standard Model of particle physics to include gravity and make the previously-intractable problems exactly calculable. Random matrices, special functions, number theory and much more all intersect in this unique new field of research. With the help of Mathematica and mathematics, HPC clusters and an international Japanese-Italian-Croatian team, I generalised these results to several new classes of theories, some infinite in scope, and discovered a new closed form of the Painlevé VI special function along the way.

Education

University of Zagreb, Physics Department | MSc
Sept 2013 – July 2018 | Zagreb, Croatia

→ Physics MSc, thesis: "Factorization Algebras in QFT", under mentorship of Zoran Škoda

→ Thesis defended 13 July 2018 with 4.953/5.000 GPA, summa cum laude

→ Applying statistics and probability theory, physical modelling with Python

Talks

"Factorization Algebras and Observables" at the Spring school on Geometry and Topology in Hradec Králové, May 2018

"ABCDEFG of Gauge and Painlevé" at the XVI Avogadro Meeting at the GGI Firence, online, Jan 2021

Awards

2016/17	Scholarship of Excellence
2017/18	Scholarship of Excellence

Skills

LANGUAGES

Fluent:
Croatian • English • Russian • Italian

Rusty (can re-learn if needed):
German • French • Finnish

PROGRAMMING

Experienced:
Python, pandas, scikit-learn, NumPy, SageMath • Keras, TensorFlow • SQL • LaTeX • Mathematica

Familiar:
R • C++ • CS Algorithm Classics

TOOLS/PLATFORMS

Git • Docker • GNU/Unix • slurm-based cluster

Teaching

TA, courses:
"Quantum mechanics", 2016/17 Summer semester
"Relativistic quantum physics", 2017/18 Winter semester

References

Alessandro Tanzini, Full Professor, SISSA
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Giulio Bonelli, Full Professor, SISSA
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