Armin Kekić

Curriculum Vitæ

Education

since 09/2021 **PhD Student**, Max Planck Institute for Intelligent Systems, Tübingen.
- Machine learning and causality.
- Supervisor: Bernhard Schölkopf.

2016–2017 **Master Studies Physics**, École Normale Supérieure, Paris.
- Focus areas: quantum dynamics, statistical mechanics.

2015–2016 **M.Sc. Mathematical Modelling and Scientific Computing**, University of Oxford, St Hugh's College.
- Focus areas: numerical and analytical solution of differential equations, network theory, machine learning.
- Master thesis: Numerical simulation of composite granular chains for shock attenuation. Wrote entire simulation software (Python). Supervisor: Robert A. Van Gorder.

2011–2015 **B.Sc. Physics**, University of Heidelberg.
- Focus areas: quantum dynamics, numerical simulation of physical systems.
- Bachelor thesis: Theoretical investigation (computer simulation and mathematical modelling) of the Rydberg-atom excitation process used in cold-atoms experiments. Supervisors: Adrien Signoles and Matthias Weidemüller.

2013–2014 **ERASMUS Exchange Year**, University of Birmingham, UK.
- Focus areas: financial mathematics, economics.

Experience

02/2018 – 08/2021 **Applied Scientist**, Zalando SE, Article Sales Forecast.
- Developing and deploying forecasters used for algorithmic price optimisation.
- Modelling sales and demand using Seq2Seq models (e.g. LSTMs, Transformer).
- Numerical simulation of pricing environment in order to find the right forecasting error metric as a proxy for profit made through price optimisation.

03/2017 – 01/2018 **Researcher**, *Physics of Networks*, Institute for Computer Science and Physical Institute, University of Heidelberg.
- Using methods from machine learning and network science to describe atomic spectra beyond the scope of quantum mechanics.
- Supervisor: Matthias Weidemüller.

02–04/2015 **Research Assistant**, *Quantum dynamics of atomic and molecular systems*, Physical Institute Heidelberg.
- Writing numerical solvers for quantum mechanical time evolution equations (Master equation) in Python.
- Supervisors: Adrien Signoles and Matthias Weidemüller.

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07–09/2014 **Research Intern**, *Experimental foundations of quantum computing*, Centre for Quantum Technologies, National University of Singapore.
- Design of an optical experimental set-up for Rydberg-atom imaging using electromagnetically induced transparency (EIT).
- Supervisor: Wenhui Li.

Scholarships

2016–2017 Scholarship awarded by École Normale Supérieure.

2016 Scholarship awarded by the Barbinder Watson Trust Fund, St Hugh's College, Oxford for a summer workshop in applied mathematics at Universidad Complutense de Madrid.

2014 RISE-worldwide scholarship awarded by the German Academic Exchange Service (DAAD).

2012-2017 Full scholarship by the German National Academic Foundation (Studienstiftung des deutschen Volkes).

Publications

2018 **Wave propagation across interfaces induced by different interaction exponents in ordered and disordered Hertz-like granular chains**, *Master Thesis Results*, `https://doi.org/10.1016/j.physd.2018.07.007`.

2016 **Interaction Enhanced Imaging of Rydberg P states**, *Bachelor Thesis Results*, `https://doi.org/10.1140/epjst/e2015-50339-8`.

Programming and Software Skills

Working knowledge: Python (Scipy, Numpy, Pandas, PyTorch, Keras, Tensorflow, Scikit-learn, Matplotlib, NetworkX), SQL, Matlab, Octave, Git, LaTeX.

Intermediate: R, PySpark, C++, Databricks, Mathematica.

Basic: Docker, AWS (S3, EC2, EMR), Kubernetes, Sagemaker.

Languages

German native speaker

English full professional proficiency *TOEFL iBT 112/120*

Bosnian fluent

French basic knowledge

12/08/2022