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## Work Experience

**Research Fellow**, Alfréd Rényi Institute of Mathematics, Budapest, Hungary    **November 2018–present**

Worked, for example, on the variance of zero sets of random plane waves in higher dimensions (see [1]). This involved writing programs in Python with NumPy, SymPy and Matplotlib to investigate the distribution of (sums of) random lattice points.

**Postdoctoral Fellow**, McGill University, Montréal, Canada    **August 2017–October 2018**

Conducted research in automorphic forms in hyperbolic spaces. Also in charge of planning and teaching a course in multivariable calculus to over 250 students.

**Postdoctoral Fellow**, KTH Royal Institute of Technology, Stockholm, Sweden    **May 2016–July 2017**

Studied quantum ergodicity of perturbed elliptic operators. Also wrote high-performance code in C++ to compute class numbers of quadratic number fields. Taught seminars and problem classes in multivariable calculus to multiple groups of over 50 students.

## Education

**University College London**, PhD in Mathematics    **2011–2016**

Thesis: “*Quantum Limits, Counting and Landau-type Formulae in Hyperbolic Space*”, supervised by Yiannis Petridis. In one part of my thesis I studied the distribution of high energy limits of the analogue of plane waves in negative curvature (see [2]). Lectured linear algebra to first year undergraduates and held weekly tutorials to groups of 5–6 students for multiple years.

**University College London**, Mathematics MSci, 1<sup>st</sup>-class honours    **2007–2011**

Master’s project: “*Discrete Mean Values of Dirichlet L-functions*”, supervised by Yiannis Petridis.

## Projects

- **Various ML projects in my GitHub:** e.g. [classifying dachshunds](#) among dog breeds with TensorFlow with novel object detection based on saliency maps and deploying the final model to Heroku with Flask; exploratory analysis of the [historical statistics of Liiga](#), the Finnish ice hockey league.
- **Dean’s Summer Student Scholarship**, UCL, London (2009): used cellular automata to model complex behaviour such as urban growth. Helped organise a conference at the House of Lords to promote science to politicians.
- **Areva T&D Ltd.**, Tampere (2008): designed, documented and implemented a program in VBA to compute noise levels for air core reactors. This resulted in greatly streamlining the workflow for the whole department.

## Select Publications

- [1] **On the Variance of the Nodal Volume of Arithmetic Random Waves** with G. Cherubini (2021), (submitted), [arXiv:2007.12143](#).
- [2] **Quantum Limits of Eisenstein Series in  $\mathbb{H}^3$**  (2019), *Probabilistic methods in geometry, topology and spectral theory*, pp. 125-138, Contemp. Math., 739, Amer. Math. Soc., Providence, RI, [doi:10.1090/conm/739](#), [arXiv:1511.07411](#).

## Awards and Prizes

- **UCL Faculty of Mathematical and Physical Sciences Postgraduate Research Prize** (2016): *awarded for the best PhD thesis across the whole faculty.*
- **150th Anniversary Postdoctoral Mobility Grant** (2015), London Mathematical Society.
- **Mayer de Rothschild Award** (2015) and **Davenport Prize** (2012) in Pure Mathematics, UCL.

## Service and Outreach

- Co-organised a week-long virtual conference “[Online Conference in Automorphic Forms](#)” in June 2020.
- Instructor in the Maths and Stats joint programming club at UCL in 2014–2015, slides and code from my talks are on my [GitHub](#). In weekly sessions I also helped students work through assignments in e.g. Python, C and LISP.

## Skills & Additional Information

- ML skills: Python, deep learning, CNNs, sklearn, TensorFlow, NumPy, pandas, SQL and basic competency in C++.
- Native Finnish, fluent English, moderate Swedish and Japanese, satisfactory German.
- Finnish National Service in summer 2006 – summer 2007. Completed the Reserve Officer School of Hamina in winter 2006. Current rank reserve 2nd Lieutenant.